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ORIGINAL ARTICLES.

REPORT OF 111 ADDITIONAL CASES OPERATED UPON WITH THE ANASTOMOSIS-BUTTON.

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THIS paper presents in tabulated form 111 additional cases operated upon with the anastomosis-button since the publication of my article, "Analysis of Cases Operated on with the Aid of the Murphy-Button up to the Present Time." (THE MEDICAL NEWS, February 9, 1895.) These were gathered from a cursory examination of the current medical literature and from correspondence. They do not include a number of cases reported to me verbally at medical meetings and in my intercourse with medical *confrères*, in regard to which I lack data sufficient to make them available for publication. Beside presenting the tabulated list, this paper gives a brief analysis of the various groups and calls attention to some of the more instructive cases, making such deductions as would seem legitimate from the results obtained.

GASTROENTEROSTOMY FOR MALIGNANT DISEASE. *By Lateral Apposition.* This operation has been performed in 61 cases altogether, with 28 deaths. Of the 34 new cases, 7 died from exhaustion and shock, while the result of the operative technic, as far as we can learn from the reports, was perfect. This further emphasizes the position taken in a former paper that gastroenterostomy in extremely emaciated and cachectic patients is not a justifiable or, at least, an expedient procedure. It can hardly be expected to prolong life or materially alleviate the condition of the patient. Six of the whole number died from peritonitis; of these, in Case 24 there was perfect union at the seat of approximation, showing that the infection existed from the time of the operation and was not due to any defect in the method used. In two of these cases there was an imperfect approximation of the two sections of the button; in a third the smallest-sized button was employed and the thickened wall of the stomach could not be retained within its grasp. An explanation of the imperfect closure of the button was given by both operators, viz., that sufficient pressure was not employed. The case reported by Zielewicz, who was so hasty to draw conclusions, was thoroughly analyzed by Dr. Willy Meyer[1] and Alex. C. Wiener.[2] The report of the autopsy did not state that there were any evidences of union in any part of the approximated surfaces, but I cannot believe that with a properly closed button the wall of the small intestine will stand the pressure for several days without atrophy at some points of its circumference; and if the surfaces were in apposition for seven days there should have been union, unless infection existed. The operation by other methods shows that union can occur within forty-eight hours, and in the dog the button has frequently been voided as early as the third day. Moreover, eating half a pound of "leberwurst" at one meal was rather an heroic test for a seven-day union.

In one case of peritonitis death occurred on the eighth day, with carcinomatous growth involving the whole stomach. One death that occurred on the second day was attributed simply to the generally bad condition of the patient, and in still another no cause whatever was stated. One death was due to a continuation of a hemorrhage that had persisted for weeks before the operation.

In four cases the button was found in the stomach. This is not surprising when we consider the enormous gastric dilatation that accompanies pyloric obstruction. The danger from this occurrence I consider slight, as when the stomach regains its tone the button is likely to be forced out through the enlarged opening that has been found in these cases. The tolerance of the stomach to foreign bodies is well demonstrated by occasional reports of autopsies at insane-asylums, and the largest-sized button is not in itself a specially dangerous or toxic substance.[3] In future cases of gastroenterostomy I would advise the use of the oblong button, as its shape would favor its early expulsion. I think the operation should be reserved for cases of non-malignant pyloric obstruction and small annular carcinomata without secondary glandular infection. In the first

[1] Centralbl. f. Chirurg., Nov. 2, 1874.
[2] Centralbl. f. Chirurg., Jan. 26, 1895.
[3] See case reported by Quenu. Med. Week, October 25, 1895, p. 511.

RESECTION, END-TO-END APPROXIMATION. (METHOD: MURPHY BUTTON.)

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Position	Result.	Cause of death.	REMARKS.
93	1894 Feb. 4	Col. Climat., Mar. 15, 1895.	Wooding, B. F., Trinidad, Col.	Bullet-wound.	Resection, 4 inches.	E. E.	D.	Operated 2 days after injury.	Patient collapsed before operation; death 8 hours after operation. Post-mortem, two perforations not detected.
94	Aug. 19	Col. Climat., Mar. 15, 1895.	Parkhill, C., Denver, Col.	Intestinal obstruction.	Lateral approximation.	S. S.	D.	Collapse.	Patient in extreme condition when operated; did not rally from collapse. Carcinoma of hepatic flexure of colon; frequent bowel movements after operation.
95	Oct. 17	Col Climat., Mar. 15, 1895.	Lyman, C. B., Denver, Col.	Crushing injury of abdomen.	Resection, 2 inches.	E. E.	D.	Shock.	Crushing injury involving the left thigh and left side of abdomen; tissues ecchymotic and emphysematous. Abdomen opened in median line; circumscribed abscess between crest of ilium and last ribs communicated with intestine, evidently result of old intestinal ulceration. Peritonitis (general) present at time of operation. Patient died 1 hour after operation. "The operation was hopeless from the start."
96	Aug. 8	Not published.	Murray, T. J., Butte, Mont.	Strangulated hernia.	Resection, 12 inches.	E. E.	R.	.....	Button No. 3 used; voided 12th day. Strangulation existed 6 days. Fecal matter oozed through wall of strangulated bowel.
97	.....	Lancet, London, April 6, 1895.	Barling, J., Birmingham, Eng.	Strangulated hernia, umbilical.	Resection, 5 inches.	E. E.	R.	....	Button No. 4 used, which passed on 24th day. Uneventful recovery.
98*	Nov. 27 1895	Lancet, London, March 9, 1895.	Bush, J. P., Bristol, Eng	Strangulated hernia.	Resection, 5 inches.	E. E.	R.	.....	Button voided on 37th day. Patient in excellent condition four months after operation.
99	Jan. 10	Gazette Hebdom., March, 1895.	Villard, E., France.	Strangulated hernia, gangrenous.	Resection, 4 inches.	E. E.	R.	... .	Button voided on 14th day. Uneventful recovery.
100	Feb.	Brit. Med. Journal, April 20, 1895.	Morton, Charles Q., Bristol, England.	Intestinal obstruction (malignant).	Lateral approximation.	S. S.	R.	.....	Approximation of side of ileum to side of colon. Button No. 4 used. Not found up to date of publication. Uneventful recovery.
101	Jan. 29	The Lancet (London).	Lane, J. Ernest, London, England.	Strangulated hernia, 4 days.	Resection, 5 inches.	E. E.	R.	.....	Button removed from rectum on 19th day. Patient had delirium tremens, diarrhea, and infection from gangrene in shock following operation, still made an excellent recovery.
102	Feb. 25	The Lancet (London).	Lane, J. Ernest, London, England.	Strangulated hernia, fem., 7 days.	Resection, 7 inches.	E. E.	D.	Shock, 30 hours.	Patient did not rally after operation. Necropsy: Perfect approximation, some adhesions, no peritonitis.
103	June	Not published.	Beckett, W. W. and Haynes, Fr. C., Los Angeles, Cal.	Strangulated hernia.	Resection, 6 inches.	E. E.	R.	.....	Splendid recovery; button passed on 21st day.
104	Jan. 4	The Lancet (London).	Owen, Edmund, London, England.	Carcinoma of ascending colon.	Resection.	E. E.	D.	.....	Time from operation to death not given; gas escaped from wound. Necropsy: Perforation found on distal side of button, where thin bowel pressed against side of button.
105	1895	Not published.	Wittwer, H. R., Chicago.	Abscess following oöphorectomy, rupture of bowel.	Resection, 3 inches.	E. E.	D.	Peritonitis.	While removing an abscess-sac which ruptured into peritoneal cavity bowel was torn. Death from peritonitis in 48 hours. Anastomosis completed in 13 minutes. Necropsy: Button in position; union perfect, water-tight.
106	1894 Aug. 18	" "	Silver, H. M., New York.	Strangulated femoral hernia.	Resection, 3 inches.	E. E.	R.	.....	Button voided on 8th day; not one disagreeable symptom after operation.
107	1895 April 5	" "	Stewart, J. T., Los Angeles.	Carcinoma of cecum and colon.	Resection, 12 inches.	E. E.	R.	.....	Cecum with ascending colon resected; end of ileum joined to end of ascending colon; button voided on 16th day.
108	Jan. 11	" "	Kime, J. W., Fort Dodge, Ia.	Strangulated perforated hernia.	Resection.	E. E.	D.	Shock, 2 hours.	Patient was operated on for strangulated hernia six days previously and gangrenous bowel returned into the abdomen; it perforated in many places, producing a fatal peritonitis, which was present at time of resection.
109	1894 Feb. 3	" "	Vander Veer, A., Albany, N. Y.	Stricture of sigmoid.	Resection, 4 inches.	E. E.	R.	.....	When end of rectum was united to sigmoid I recognized that there was too much pressure of the bowel over crest of sacrum, and that obstruction might result from the pressure. On third day patient presented all the marked symptoms of obstruction of bowel, though gas had been passed per rectum up to that time. Left inguinal enterostomy of small intestine; free discharge; death from exhaustion in 11 days. Necropsy: Ends of intestine found united; button loose in lower portion of rectum. Patient exhausted before operation.
110	1895 Jan. 4	" "	Vander Veer A., Albany, N. Y.	Multilocular ovarian cyst.	Resection, 6 inches.	E. E.	R.	.....	Six inches of ileum imbedded in papillomatous growth; it was resected and ends united with Murphy button, making operation exceedingly simple. Button not found, but on 19th day three evacuations were not examined. This patient made a remarkable recovery after severe nervous symptoms; now in absolute health; gained 20 pounds.

* No. 98 duplicated, same as No. 120.

111	May 30	Not published.	Peck, George S., Youngstown, O.	Fecal fistula, large.	Resection ileum, 4 inches.	E. E.	D.	Septic peritonitis, 28 hrs.	Autopsy revealed a large collection of chocolate-colored fluid in peritoneal cavity. Button in perfect position; no leakage.
112	July 23	" "	Peck, George S., Youngstown, O.	Appendicitis, gangrene.	Resection, 3 inches.	E. E.	R.	.....	Ileum found gangrenous and perforated, requiring resection. Button passed on 13th day.
113	1895 1894	Belgian Surg. Soc.	Rouchet, P., Antwerp, Belg.	Gangrenous hernia.	Resection.	E. E.	R.	.....	The number of inches resected was not given in letter.
114	Dec. 6	The Lancet, Lond., May 11, 1895.	Spencer, W. G., London.	Gangrenous hernia.	Resection.	E. E.	D.	Collapse, 12 hrs.	Patient operated on December 2, 1894, for strangulated femoral hernia; Littré; with gangrene of diverticulum. After operation gangrene spread to intestine, and three days later patient vomited coffee-colored fecal matter; this continued until next day, when a second operation was performed. Bowel found gangrenous and resected. Gangrenous bowel torn during operation; fecal extravasation. Death 12 hours later. Necropsy: Peritoneum dark-red hue covered with yellow lymph, most abundant in right iliac region.
115	1895 Feb.	Not published.	McGuire, Stuart, Richmond, Va.	Bullet-wound.	Resection (double).	E. E.	D.	Shock, 18 hours.	In one place of 22 inches there were 11 perforations; resected; end-to-end union. Five feet from this place there were two perforations requiring second resection. Necropsy: No peritonitis; the button held bowel in perfect apposition.
116	Apr. 13	" "	McGuire, Stuart, Richmond, Va.	Strangulated hernia, umb.	Resection, 16 inches.	E. E.	R.	.....	Uninterrupted recovery. Button was found in the rectum on 22d day.
117	?	Med. News, April 13, 1895.	Cauthorn, F., Portland, Ore.	Tumor of mesentery.	Resection, 48 inches.	E. E.	R.	.....	Patient did very well for two months, when he began to suffer from borborygmus, colicky pains, and diarrhea. This continued for a long time, when he had a perforation of bowel from button. I feel that I should have operated again for the symptoms.
118	? 1895	Not published.	Dunn, J. H., Minneapolis, Minn.	Carcinoma caput coli.	S. S. approximation.	E. E.	R.	.....	Fistula at seat of union producing adhesion of adjacent coil, causing retention of button.
119	June 1	" "	Frederick, Buffalo, N.Y.; Cotter, J. C., Meadville, Pa.	Large vaginal intestinal fistula.	Resection.	E. S.	R.	.....	End of bowel liberated from vagina, liberated end sutured. Proximal end joined to side of distal with button. Button found in rectum on 11th day. Perfect recovery.
120	1894 Nov. 27	The Lancet, Lond., April 6, 1895.	Bush, Paul J., Bristol, England.	Strangulated hernia (gangrene).	Resection.	E. E.	R.	.....	Large-sized button. Patient had severe pneumonia following operation. On January 4, 1895, button passed without pain, imbedded in a large mass of feces. Patient under observation for four months; at the end of this time in excellent health.
121	1895 Feb.	Not published.	Hill, William, Bloomington, Ill.	Typhoid-perforation.	Resection, 1 inch.	E. E.	R.	.....	Button voided on 17th day. Perforation occurred in 6th week of recurrent typhoid. So much of wall of bowel involved in ulcer that it could not be sutured. Operation twelve hours after first symptom of perforation. Patient, boy 13 years old. Excellent recovery.
122	.....	Brit. Med. Journal, Feb. 23, 1895.	Banks, W. Mitchell,	Fibrous tumor of ileum.	Resection.	E. E.	D.	Exhaustion, 30 hours.	Patient in poor condition; did not rally from operation; bowel soundly glued together, except at one point a slight leakage; no peritonitis.
123	1894 Dec. 30	Brit. Med. Journal, Feb. 23, 1895.	Banks, W. Mitchell,	Intussusception, gangrene.	Resection.	E. E.	R.	.....	Patient, boy 7 years old. Button passed 18th day. Operation done with greater ease and rapidity.
124	July 11	Brit. Med. Journal, Feb. 9, 1894.	Hamilton, Geo. G.	Carcinoma transverse colon.	Resection.	E. E.	R.	.....	Button passed 24th day. Recovery uneventful.
125	July 11	Ann. Surg., xxi, 72.	Abbe, R.	Carcinoma of colon.	Resection.	E. E.	D.	Intestinal obstruction.	Button too small; occluded with feces. Abbe thinks larger-sized button would have saved patient.
126	Sept. 14	Mathew's Medical Quart., Apr. 1895.	Lilienthal, H.	Abdominal abscess.	Resection.	E. E.	D.	Peritonitis.	Colon atrophied; difficult to insert button 1¾ inches; button cut through.
127	Sept. 27	Mathew's Medical Quart, Apr. 1895.	Lilienthal, H.	Sacral tumor.	Resection.	E. E.	R.	.....	Colon atrophied. Lumen of button filled with strip of gauze leading down to anus, which was removed on 4th day. Button had to be removed by rectum, as it was lodged at sacral tumor.
128	1895 Feb. 10	Revue de Chirurg., Sept., 1895.	Forgue (Montpellier).	Artificial anus.	Resection.	E. E.	D.	Collapse.	Intestine thickened and friable; fissure above button sutured. The intestine enormously thickened.
129	Sept. 9	Beitr. zur klin. Chir., xiv, 95.	v. Frey, R.	Artificial anus.	Resection.	E. E.	D.	Peritonitis.	Peritonitis existing before operation.
130	.....	Ann. Surg, Oct., 1895.	Abbe, R.	Strangulated hernia.	Resection.	E. E.	D.	.....	48 hours; good union; no leakage. Kinking in bowel on distal side of button. Reopening of abdomen 48 hours later showed a kink in bowel below button. The approximated parts had gravitated to lowest portion of pelvis. It seemed to Dr. Abbe that the weight of the button had given rise to the sharp bend. Dr. Rushmore considered the obstruction due to paralysis of gut.
131	.....	Hosp. Tidende, July 24, 1895.	Borelius, J., Sweden.	Hernia, gangrene.	Resection, end to end.	E. E.	R.	....	Convalescence uneventful; button passed.
132	.....	Hosp. Tidende, July 24, 1895.	Borelius, J., Sweden.	Ileus.	Resection, end to end.	E. E.	D.	Peritonitis.	

RESECTION, END-TO-END APPROXIMATION. (METHOD: MURPHY BUTTON.)—*Continued.*

No.	Date.	Publication.	Operator.	Diagnosis.	Operation.	Position	Result.	Cause of death.	REMARKS.
133	1895 Mar. 8	Hygiea, March, 1895.	Borelius, J., Sweden.	Artificial anus.	Resection, end to end.	E. E.	R.	.....	Button passed 26th day.
134	Mar. 1	Hygiea, March, 1895.	Borelius, J., Sweden.	Strangulated hernia.	Resection, end to end.	E. E.	R.	.....	Button passed 12th day.
135	1894	Hosp. Tidende, July 24, 1895.	Tscherning, Sweden.	Carcinoma of colon.	Resection and nephrectomy.	E. E.	D.	Infection.	Suppuration in retro-peritoneal connective tissue. Death not attributable to button.
136	Nov. 11	Beitr. zur klin. Chir., xiii.	Czerny, Heidelberg, Germany.	Gangrenous hernia.	2 resections—1 suture, 1 button.	E. E.	D.	Collapse (same day).	Colon gangrenous from cecum to sigmoid, 50 cm.; 170 cm. of small intestine gangrenous. Autopsy showed both anastomoses perfect.
137	1895 Jan. 28	Practitioner, London, June, 1895.	Treves, H., London, Eng.	Carcinoma of colon.	Lateral anastomosis.	S. S.	R.	.....	Transverse colon united to sigmoid flexure. Button passed 8th day. Recovery uneventful.
138	Mar. 25	Lancet, London, June 15, 1895.	Mayo-Robson, Barrs, A. G., Leeds, Eng.	Extensive carcinoma of splenic flexure.	Lateral anastomosis.	S. S.	R.	.....	Carcinoma too extensive for removal. Ileum approximated to sigmoid flexure. Time for anastomosis less than 5 minutes, time being noted without operator's knowledge. Flatus passed on 2d day; bowels moved on 3d. Patient died of pneumonia on 11th day. Autopsy: Perfect intestinal approximation; button free in cecum on proximal side; no peritonitis.
139	.....	Trans. Amer. Assoc. Obstet. and Gyn., 1894.	Macdon'd, Willis, J., New York.	Strangulated hernia 7 days.	Resection, 10 inches.	E. E.	D.	70 hours after operation.	No autopsy. The coil of intestine in which the anastomosis had been made was taken out through wound. Button occluded with hard black mass.
140	Sept. 6	Not published.	Walker, J. W., Cook Co. Hosp., Chicago.	Gunshot-wound of abdomen.	Resection, 2 inches.	E. E.	R.	.....	Button passed on 15th day. Double perforation 8 inches apart. Two openings resected, 3d sutured.
141	.....	" "	Rosenberry, H. L., Wausau, Wis.	Strangulated hernia.	Resection, 12 inches colon.	E. E.	R.	.....	Patient had peritonitis at time of operation; had singultus for 3 days; all subsided. Patient progressed nicely; committed suicide later.
142	1893 Mar. 10	" "	Rosenstein, Julius, San Francisco, Cal.	Strangulated umbilical perforated hernia.	Resection of transverse colon.	E. E.	D.	Collapse.	Patient unconscious from hemorrhage and shock from gangrene of colon and skin over hernia, with perforation of both; parts rendered clean; patient's temperature and pulse high; gangrene continued in bowel after operation; 2d resection; death in a few hours; no peritonitis; collapse. Autopsy: Intestine again showed signs of commencing gangrene, even though she lived but a few hours after the second operation.
143	Sept. 16	" "	Rosenstein, Julius, San Francisco, Cal.	Carcinoma of stomach, tra. colon.	Resection of colon, 2 inches.	E. E.	D.	Exhaustion 6th day.	No abdominal symptoms after operation; constant discharge of ascitic fluid. Autopsy: Large tumor in posterior wall of stomach, one in pylorus; greater and lesser omentum studded; anastomosis perfect; no peritonitis.
144	.....	" "	Banks, W. Mitchell, Liverpool, Eng.	Cicatricial contraction at cecum.	Lateral anastomosis.	E. E.	R.	.....	Case of old cecal inflammation producing obstruction by contraction; ileum severed 8 inches from ileo-cecal valve, and attachment of proximal end to middle of ascending colon. Perfect convalescence; button voided on 19th day.
145	1894 Sept. 15	" "	Murphy, J. B., Chicago.	Intussusception.	Enterotomy.	E. S.	D.	Shock, 3 hours.	A case of 5-day intussusception; child in extreme condition when operated on; ileum invaginated in cecum and colon, could not be reduced; ileum divided and buttoned to ascending colon; distal end sutured; patient did not rally.
146	1895 Oct. 18	" "	Murphy, J. B., Chicago.	Tumor of bowel.	Enterectomy, 24 inches.	E. E.	R.	.....	Tumor showed first symptoms 7 weeks previous to operation; was accompanied by temperature of 102.5°; originated in mesentery of ileum; involved entire intestinal wall for 7 inches and mesentery for 24 inches of bowel; no obstruction; glands in other portions of mesentery enlarged; no ulceration on mucous surface of bowel; still temperature 102½°. Simulating a case of old appendicitis, except the history was not right for appendicitis.
147	Apr. 22	Centlbl. Chir, Oct. 12, 1895.	Kofman, Odessa, Russia.	Intussusception, stricture.	Resection, 4 cm.	E. E.	R.	.....	Button voided on 16th day. The intussusception occurred in the jejunum, and bowel was perforated.
148	June 15	Not published.	Bacon, J. B., Chicago.	Stricture of rectum, specific.	Lateral approx. clamp.	S. S.	R.	.....	Button voided on 8th day. Examination on October 23d showed large rectum; practically all fibrous deposit in rectum had disappeared, tissue being now soft and pliable.
149	1894 Sept. 13	" "	Murphy, J. B., Chicago.	Carcinoma of rectum.	Resection, 3 inches.	E. E.	R.	.....	Annular carcinoma of rectum in patient 71 years old; button voided 10th day. Patient has had no recurrence, October 20, 1895.

class all of the advantages of pylorectomy are obtained with a minimum of danger; in the second, the patient's condition is greatly improved and life is materially prolonged.

Conclusions. 1. Gastroenterostomy should never be performed in extremely cachectic patients. There is nothing to gain and much to lose.

2. The posterior wall of the stomach is the preferable locality for the approximation.

3. Supporting sutures, outside of the button, are not necessary, except for the relief of tension.

4. The peritoneum of the stomach should be scarified at the point of approximation, as union is thus hastened.

PYLORECTOMY. We have reports of 7 pylorectomies, with 5 recoveries and 2 deaths. One patient of Dr. H. R. Wittwer died five days after the operation, which lasted forty minutes. The autopsy showed a perfect approximation and no peritonitis. Death occurred from exhaustion. Malthe seems to attribute his ill-success in one case to imperfect suturing posteriorly with resulting fistula and peritonitis. The patient survived, however, for three weeks.

This operation is one that should be strongly commended in all cases of incipient carcinoma of the pylorus. With this operation the danger is not great, the time occupied being greatly reduced by the use of the button to approximate the duodenum and posterior wall of the stomach.

Dr. A. H. Ferguson, of this city, was the first to operate with the anastomosis-button, July 25, 1893; the patient is still living and in excellent health. Diagnosis of carcinoma of the pylorus should be made long before any tumor is palpable in the epigastrium, and the earlier the operation the better the prognosis, immediate and remote.

CHOLECYSTDUODENOSTOMY. Fifty-one cases are reported, with two deaths, one of these on the seventh day from continued hemorrhage from a laceration of the liver produced in separating adhesions. The other death was from peritonitis due to the escape of septic contents of the gall-bladder into the abdominal cavity during the operation. Death occurred on the fourth day.

The indications for this operation are (1) permanent obstruction of the cystic duct, (2) obstruction of the common duct, (3) cases of septic cholecystitis when a long period of continuous drainage is desirable, (4) cases of fistula of the gall-bladder when the patient is becoming emaciated from loss of bile. The later operations have included the simultaneous removal of the gall-stones, though I had not found that allowing the gall-stones to remain and pass with the button interfered in any way with the favorable progress of the case. It has certainly not been my experience that allowing them to remain in the gall-bladder in cholecystenterostomy is the source of danger that certain operators and theorists in gall-tract surgery would have us believe. In cases of long-continued and severe jaundice all prolonged and extensive operations should be avoided, as these patients withstand the depressing effect poorly and frequently succumb to uremia. This is well demonstrated by a comparison of the statistics of the operations of cholecystostomy and cholecystectomy, and it is also further shown by the results obtained in cholecystenterostomy for malignant disease, when we have in addition to cholemia the malignant cachexia. Operations under such existing conditions are practically hopeless. There were 12 operations of this kind, with 10 deaths. In only 2 of these was there a failure of union, and in both the tissues were so friable that the button tore through. The tendency to general subcutaneous and submucous hemorrhage, as well as to bleeding from local lacerations, is very marked. The drainage-tube-button has been used to advantage in cases of contracted gall-bladder in which it was impossible to suture this viscus to the abdominal wall.

INTESTINAL APPROXIMATION. While the anastomosis-button was originally devised for the operation of cholecystenterostomy, for which all admit that it is an ideal apparatus, still its greatest field of practical usefulness has been in the surgery of the intestines. In the analysis of the operations on the intestine, the special pathologic conditions and the general state of the patient at the time of operating must be taken into consideration in order to properly estimate the merits of the surgical procedure. The intrinsic dangers of the lesions in this class of cases will always insure a considerable mortality, certainly until diagnosticians are more accurate in their art and surgeons are more prompt in their action.

The operations on the intestines are here divided into the following classes: (1) Resections of the bowel for gangrene: *a*, for internal obstruction; *b*, for hernia; (2) resection of the bowel for the cure of fecal fistula; (3) resections for internal obstructions other than malignant disease; (4) resections for malignant growths; (5) resections for perforations of the intestine, traumatic or otherwise; (6) resection of the rectum; (7) Bacon's operation.

The resections for gangrene, internal and external, including both large and small intestine, number 34, with 8 deaths, or very nearly 24 per cent. There were 15 cases of resection for the relief of fecal fistula, with 12 recoveries and 3 deaths. In one of these latter (No. 128) death occurred from collapse; the intestinal wall was enormously thickened and very friable, and in the manipulations it was impossible to properly close the button; a fissure was left and closed by suture. The other two cases both died of peritonitis. In No. 129 the inflammation

of the peritoneum existed at the time of operation, and in No. 111 the patient died 28 hours after the operation from septic peritonitis, but with the button in perfect position and without leakage. Dr. Peck kindly sent me the specimen for examination.

Resections of the bowel for obstruction from non-malignant disease number altogether 53, with 47 recoveries and 6 deaths, a mortality of about 11 per cent. If to these be added the 7 cases of Dr. Joseph Price, we have a total of 60 cases, with 7 deaths. To this also may be added 6 lateral approximations, previously reported, making a total of 66, with 7 deaths, a mortality-percentage of about 10 per cent.

The resections of the bowel for malignant disease show a larger mortality than do operations for malignant disease elsewhere in the body. There was a total of 41 operations, with 26 recoveries, and 15 deaths, a mortality of 37 per cent.

RESECTIONS FOR PERFORATIONS OF THE INTESTINES, TRAUMATIC AND PATHOLOGIC. The mortality in the cases operated on for perforations, both for gunshot-wounds, perforating ulcers, and laceration of the bowels has always been very great. The danger is not in the operation, but in the pathologic conditions produced by the lesion. Leube, in his collection of 322 cases, found that when the operation was performed within 12 hours after the injury, the mortality was 58.2 per cent.; if later than 12 hours, the mortality was 79.5 per cent. These statistics emphasize most forcibly the necessity of early operation in such cases. With bullet-wounds of the abdomen, there are the collapsed condition of the patient, the profuse hemorrhage, the shock to the nervous system, all contributing to increase the mortality. In operations for bullet-wounds, evisceration should never be practised; the intestine should be carefully examined from one end to the other without having more than one foot of their length exposed outside of the abdomen at any one time. Every opening should be clamped with forceps as soon as discovered and the uninjured portions immediately returned. The number of perforations made by one bullet ranges from 1 to 18. The openings in the small intestines, as a rule, are in close proximity to each other, and many may be included in a single resection of 2 or 3 feet. The perforation in the colon may be a long distance, by way of the canal, from those in the small intestine. The median incision is most practicable and available for wounds in the small intestine, the lateral incision for those of the cecum and sigmoid. An approximately accurate estimate of the position of the perforations can be made by noting the track of the bullet, and the bullet itself may be located by the ingenious telephonic probe of Dr. Girdner, of New York. Double resections may be made and two buttons used, as illustrated by the cases of Dr. R. R. Williams, Dr. F. H. Wiggins, and Dr. Stuart McGuire.

In this connection I desire to mention particularly a very interesting case reported to me by Dr. Wm. Hill, of Bloomington, Ill.:

The patient was a male, aged 13, in the sixth week of a recurrent typhoid, who was attacked with sudden abdominal pain, nausea, vomiting, and tenderness in the right iliac region. When seen by Dr. Hill, twelve hours later, the abdomen was tympanitic, the patient's pulse good, the temperature about 102°. The diagnosis was perforation. Immediate celiotomy was undertaken twelve hours after onset of symptoms. The perforation was located; there was considerable peritonitis. So much of the circumference of the bowel was involved in the ulcer that a resection was made, with end-to-end approximation with button No. 3. Recovery was uneventful. The button was voided on the seventeenth day.

(To be continued.)

FOOD-INFECTION WITH TOXICOGENIC GERMS.

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WITHIN recent years there has apparently been a great increase in the number of instances of food-poisoning. This increase has been partly real and partly only apparent. The actual increase has been due to the larger consumption of preserved foods and the wider distribution of food from a given point. When we recognize the facts that the scientific principles of bacteriology are involved in the preparation of every can of preserved food and that this work is done wholly by those who are grossly ignorant of these principles, we can only wonder that harm does not come to the consumer more frequently than it does. Moreover, diseased and damaged articles of food can be worked in preserved preparations and sold as prime goods when they could not be so disposed of otherwise. We do not claim that this is a fraud frequently practised, but that it has been occasionally resorted to both in this country and in Europe has been abundantly demonstrated.

It is not our purpose in this paper to discuss the use of tuberculous meat and milk or of any other food invaded by specific infection; but we wish to give our attention to those cases of food-poisoning in which the infecting agent is a saprophytic poison-producing microorganism.

The apparent increase in the number of instances of this kind is due to the fact that the medical profession has but recently learned to recognize this form of food-infection as a cause of illness, or, at least, has been in the possession of the knowledge necessary to convert suspicion into demonstration.

Only a few years ago we were seeking for the cause of the summer diarrheas of infancy in mysterious telluric and meteorologic conditions, but now we know that these diseases are solely due to infected, and consequently poisonous, food. Formerly many cases of food-poisoning were supposed to be due to the accidental or criminal addition of some metallic or vegetable poison to the food, and unjust accusation, possibly in some instances unjust punishment, has resulted. Now we know that not only the symptoms of gastrointestinal irritant, inorganic poisons, but those of typhoid fever and typhus fever, scarlet fever, and other acute exanthemata, and even those of pneumonia, may be closely simulated by the symptoms induced by infected foods.

The effects of poisonous foods as gastrointestinal irritants are too well known to demand illustrative examples. The production of a continued fever closely simulating typhoid has been repeatedly observed. The following brief abstract of a case reported by Gaffky will serve as an illustration:

D., the chemist of the Hygienic Institute at Giessen, did not feel well on the morning of October 10th, but in company with assistant B. he visited Frankfort. During the day he had a severe headache, no appetite, and frequent chilly sensations. On returning to Giessen at night he was scarcely able to walk. On the next day he refused all food, was slightly delirious, and had one watery stool. On the 13th his condition showed serious infection. His face was red, his eyes sunken, his temperature 105.2°, and he lay in a half-unconscious state. The tongue was heavily coated; the abdomen distended and painful on pressure. He had five dark-brown, later greenish, stools. The urine was concentrated and contained 2 per cent. of albumin, as determined by Esbach tubes; it gave the diazo-reaction and the indican-reaction and contained white blood-corpuscles and numerous granular casts.

From the 13th to the 17th the patient was stupid, but not delirious. The abdomen was greatly distended and from 20 to 24 stools were passed each day, with great tenesmus. The temperature remained high notwithstanding repeated one-gram doses of antipyrin. Sleep was broken and one gram of sulfonal was given at night. The urine remained as before, and the pulse varied from 92 to 100.

From the 18th to the 20th the mental dulness was less marked. Appetite was somewhat improved and the number of stools decreased to from 8 to 10 in 24 hours. The amount of albumin in the urine was somewhat decreased and microscopic examination showed fatty casts and white blood-corpuscles. Small doses of opium were given by mouth and in suppositories.

On the morning of the 21st hemorrhage from the bowels, about 300 c.c. in amount, occurred. Several doses of opium were given and ice-bags were kept on the abdomen. After the hemorrhage there were three slightly bloody stools. From this time the improvement was slow, but fairly constant. The fever disappeared October 29th.

After recovery, marked anesthesia of the anterior surface of the thigh developed and remained for some weeks, the anesthetic area gradually becoming smaller. The hair fell out, mental activity tired, and the eyes were easily fatigued for some months. Two workers in the same laboratory were affected in the same manner, but less severely. The only food or drink which these three men had in common was some uncooked milk taken on the morning of October 9th. D. ordered the milk sent to the laboratory, drank the greater part of it himself, giving B. a small cupful, and the servant drank a little left by the others. The cow that gave this milk was suffering from a bloody diarrhea. Gaffky found in the stools of the cow and in those of the patients a small highly virulent form of the bacillus coli, and to this he ascribes the ill effects. He supposes that some of the liquid discharges from the cow fell on the udder and thus found its way into the milk.

Gaffky suggests that the epidemic in Christiana in 1888, in which 6000 persons sickened within three weeks, was probably due to milk-infection. Hausemann states that this epidemic was regarded as *morbus sui generis*. It was evidently neither cholera nor typhoid fever. Half of those affected were children, and yet nurslings escaped altogether. However, milk, as an etiologic factor, seems not to have been considered by the attending physicians.

A case of food-poisoning resembling scarlet fever was seen by one of us two years ago and may be briefly reported as follows:

K., a very vigorous man of 34, ate freely of canned salmon. Others at the table with him remarked that the taste of the salmon was peculiar and refrained from eating it. Twelve hours later K. began to suffer from nausea, vomiting, and a griping pain in the abdomen. Eighteen hours after he had eaten the fish, Dr. Vaughan saw him. He was vomiting small quantities of mucus, colored with bile, at frequent intervals. The bowels had not moved and the griping pain continued. He was covered with a scarlatinous rash from head to foot. His pulse was 140, temperature 102°, and respiration shallow and irregular. The stomach and large intestines were washed out thoroughly, and ten grains of calomel, soon followed by twelve ounces of solution of magnesium citrate, were administered, for the purpose of cleansing the small intestines. After these medicines had acted freely, K. began to improve. The next day the rash had disappeared, but the temperature remained above the normal for four or five days, and it was not until a week later that he was able to leave his house. The remainder of the salmon was submitted to various tests. The absence of inorganic poisons was demonstrated. It was found that the subcutaneous injection of twenty drops of the fluid expressed from the salmon caused evident illness and suffering in a white rat. The only germ that could be found either by direct microscopic examination or by the preparation of

plate-cultures was a micrococcus, and this was present in the salmon in great numbers. This germ grew fairly well in beef-tea, but the injection of five c.cm. of beef-tea cultures of different ages failed to affect white rats, kittens, or rabbits. However, this micrococcus when grown for twenty days in a sterilized egg, after Hueppe's method of anaerobic culture, produced a most potent poison. The white of the egg became thin, watery, markedly alkaline, and ten drops sufficed to kill white rats.

The resemblance of the symptoms of food-poisoning in some instances to epidemic pneumonia is well illustrated in the Middlesborough pneumonia-epidemic which has been reported by Ballard and is too well known to require further mention, except to state that 490 deaths resulted.

That Winckel's disease, a septic pneumonia, may be due to infection of the food with the bacillus enteritidis first discovered by Gärtner in poisonous meat has been demonstrated. Lubarsch has reported such a case in an infant.

The stools were greenish and of bad odor. The child became cyanotic and the respiration increased to sixty per minute. Auscultation and percussion were negative in results. The breathing was wholly costal and the abdomen distended. The urine contained neither albumin nor hemoglobin. Postmortem examination showed pneumonia of the left lower lobe, bilateral purulent bronchitis, atelectasis of the right lung, parenchymatous cloudiness of the kidneys, fatty infiltration and engorgement of the liver, and slightly enlarged spleen. All other pathologic conditions were believed to be consequent upon the septic pneumonia. Plates made from the diseased organs developed only the bacillus enteritidis.

It is quite impossible to draw any sharp line between intoxication and infection in the study of the symptoms of food-poisoning. Some of the bacterial poisons are slow in inducing their effects, and even when a germ-free preparation is used in our experiments upon animals, it sometimes happens that many hours elapse before any effects are observed, even in cases ultimately terminating fatally. The relation of the germ to the production of the untoward symptoms may, according to the case, be stated in one or the other of the following ways: (1) The chemic poison is generated only and wholly in the food before it is taken; (2) The infecting organism may begin the elaboration of its poisonous products outside, and continue the same within, the body; (3) The infection may not result in the production of poisons until the food is taken into the body. The first of these conditions is well illustrated by the "Iron Bridge" cases reported by Ballard. The infecting germ would not grow at a temperature above 86°. Of course animal inoculations with this germ were wholly without result, but cultures grown at 60° were markedly poisonous. It is probable that this condition holds good in a larger number of instances than we suspect. The second condition is the one existing in some cases of poisoning with milk and its products. However, in these the infecting microorganisms do not thrive in the body unless they be supplied with the food especially suited for them. The complete withdrawal of milk as a food leads to their speedy disappearance. The violent vomiting and purging which result are curative means and should not be checked unless there be danger of death from exhaustion. The most dangerous cases of cheese-poisoning are those in which vomiting and purging do not occur. Some months ago one of us saw some twenty persons who had been poisoned with cream. All but two were vomiting and purging and complaining most vehemently. These were sure that they would die. The two exceptional ones were uttering no complaints. In fact, they were practically comatose, and thorough washing out of the stomach and intestines was resorted to before they realized that they were in danger.

When the third condition mentioned exists, a true infection results. Such is the case most probably in those instances already cited as resembling typhoid fever and pneumonia.

We have been frequently called upon to examine food suspected of having caused untoward effects, and the method followed in these examinations may be of some interest. Whenever there is the slightest possibility that a metallic poison may be present, tests for the same are made. This is always done with canned foods. However, when a teaspoonful or less of ice-cream causes vomiting and purging, the idea that these effects can be due to zinc sulphate dissolved in the freezer or to artificially prepared vanillin used in flavoring is simply too preposterous to be entertained by anyone acquainted with the quantities of these substances necessary to induce such effects. Ten years ago we went through with all the tests for metallic poisons in many samples of poisonous cheese and ice-cream, but we no longer waste our time in this manner.

The examination of foods for bacterial poisons cannot be made except in a properly equipped bacteriologic laboratory. It is our purpose to merely point out at this time the methods that may be followed. We take it for granted that the one who undertakes work of this kind is already familiar with the ordinary technic of bacteriologic research. The line of procedure will vary somewhat with the kind of food to be examined, the form in which it has been prepared, and the quantity supplied the analyst. All samples should be examined with as little delay as possible after the article has become the object of suspicion. When delay is unavoidable, further bacterial growth should be retarded in the meantime as far as is possible by keeping the suspected article at a low temperature.

Germs not present at the time of the supposed poisoning may be accidentally introduced, or non-toxicogenic bacteria may multiply to such an extent that the detection of the harmful organisms is rendered impossible.

As a rule, the quantity of the food supplied the analyst is not sufficient to allow of the detection or the isolation of the chemic poison directly. To try to find the poison in a few ounces of cheese or a small bit of meat by direct extraction is a task that would be undertaken only by one quite ignorant of the nature of these poisons. In all but exceptional instances in which many pounds of the food are supplied, the portion that reaches the laboratory can only be regarded as the bearer of the germ to the activity of which the poison is due. This germ must be detected, isolated, grown in pure culture, and its toxicogenic properties demonstrated upon lower animals. It should be clearly understood that the most thorough study of the morphologic characteristics of the germ and of the chemic properties of the poison will not suffice without an accompanying determination of the toxicologic action of the cultures. The infectious nature of the bacterium should also be studied.

It should always be borne in mind that the article of food has probably been through several hands before reaching the analyst, some of which may not have been germ-free. In the examination of pieces of meat and cheese, the surface should be sterilized with a broad, heated knife or other piece of iron. It has been shown that bacteria deposited on such surfaces penetrate slowly. Then with other sterilized knives sections should be made and one or more small bits taken from the interior should be placed in sterilized bouillon. Not less than a dozen tubes should be inoculated in this way. Three of these should be grown aerobically at ordinary temperature; three anaerobically at the same temperature; three aerobically at 37°C.; and three anaerobically at 37°C. It is quite essential that all these conditions of growth should be tried. Some of the toxicogenic germs grow best at relatively low temperature, from 20° to 25°C., and fail wholly to develop at 37°C. Others have their optimum growth at the last-mentioned temperature. Some develop only when freely supplied with air, and others only when the air is excluded.

In the examination of liquid and semi-liquid foods, such as milk, custard, cream, broths, and jellies, small bits or a few drops should be placed in sterilized bouillon and grown under the conditions already mentioned.

A growth having appeared in one or more of these tubes, the bacteria should be examined in hanging drops and in stained mounts. If more than one organism be present, plate-cultures should be made and each germ should again be grown under the conditions mentioned.

The infectious character of each organism should be tested on the lower animals: (1) by feeding, (2) by subcutaneous inoculation, (3) by intraperitoneal inoculation, and (4) by intravenous inoculation. The animals generally employed in these experiments are white mice, white rats, guinea-pigs, kittens, and rabbits. A given germ may be toxicogenic to one of these animals and not to the others. Mice and kittens are specially suitable for feeding-experiments. Young kittens are quite susceptible to most of the bacterial poisons found in milk and its products. The quantity of the bouillon-culture, 24 hours old or older, first employed should be relatively large, from one to ten c.cm., according to the animal and the method of infection. If these amounts prove active, smaller quantities should be tried until the limit is reached.

Next, the action of cultures from which the bacteria have been removed by filtration through porcelain should be tested, and, if these prove active, the effect of different degrees of heat on the toxicity of the cultures should be determined.

If by the experiments already mentioned a toxicogenic germ has been discovered, its morphologic, cultural, tinctorial, and pathogenic properties may be studied as thoroughly as the investigator may desire. The study of the bacterial poison may also be carried to the same extent.

The following reports are taken as illustrations of the results obtained by the method given:

Dec. 31st, 1894, Dr. Traver, of Somerset, Mich., was called to see the family of Mr. Van Allen. He found the father, mother, and two children suffering from protracted vomiting and marked exhaustion. There was no fever and no diarrhea. Tyrotoxicon-poisoning was suspected, but inquiry showed that their supper had consisted of bread, butter, tea, dried beef, and raspberry-sauce. There was nothing in the appearance or odor of the meat to cause any suspicion. In fact, it seemed to be of exceptionally good quality. Anaerobic cultures from the interior of the meat were made and developed a bacillus, from two to three times as long as broad, taking the ordinary stains well, motile, with no spore-formation, not liquefying gelatin, but coagulating milk, growing best at the temperature of the body, but developing its poison at ordinary temperature, producing gas abundantly, and pathogenic to white rats, rabbits, and guinea-pigs. Sterilized cultures were also poisonous.

Of a large number of men at a banquet at Sturgis, Mich., April 26, 1894, everyone who ate of the pressed chicken served was made sick. Some who were not at the banquet, but who aided in preparing for it, ate small bits of the chicken, and were also sick. All were attacked, within from two to four hours after eating the chicken, with nausea, violent griping, and purging; many fainted while attempting to arise from bed.

The chickens were killed Tuesday afternoon, picked and left hanging in the market-room (not in a cooling-room) until Wednesday forenoon, when they were drawn and carried to a restaurant and here left in a warm room until Thursday morning, when they were cooked (not very thoroughly), pressed, and served at the banquet that night. Those who ate of the unpressed chicken were also made ill.

The pressed chicken contained two microorganisms, a slender bacillus, from four to five times as long as broad, and a streptococcus. The bacillus was fatal to white rats, guinea-pigs, and rabbits when administered intraperitoneally, intravenously, and subcutaneously. The streptococcus was not fatal when given in pure cultures, but mixed cultures of the two induced death, and in these instances, when administered subcutaneously, in addition to the lesions formed after the employment of pure cultures of the bacillus, there was extensive sloughing. This bacillus is motile, takes the ordinary stains readily, and is decolorized by Gram's method. It grows very slowly at ordinary temperature and rapidly at 98°F. Of two cultures of equal age, one grown at ordinary temperature and the other at 98°F., one c.cm. of the former was necessary to induce death, while one-fourth c.cm. of the other proved fatal. The anaerobic cultures were much more powerful than the aerobic. On gelatin-plates exposed to the air the growth was slow, while on those kept in an atmosphere of hydrogen it was much more rapid. Spores could not be detected. The bacillus coagulates milk and decolorizes litmus-gelatin. On potatoes it forms a dirty, thick, slimy growth. It does not liquefy gelatin and the production of gas was not observed. Streaks on agar-agar are yellowish white, slimy, and with but little tendency to spread. One half c.cm. of a beef-tea culture heated to 140°F. for 30 minutes killed guinea-pigs. One c.cm. heated to 212° F. for 15 minutes failed to kill. Animals inoculated by the methods mentioned showed evidences of abdominal pain within from one to two hours and several were found dead after twelve hours. The abdominal cavity was found filled with a clear fluid, the bloodvessels were much congested, and the peritoneum inflamed. In some instances a bloody fluid was found in the pleural cavity.

CASES ILLUSTRATIVE OF THE CHARACTER AND TREATMENT OF EXOPHTHALMIC GOITER AND ITS CONGENERS.

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ALTHOUGH the designation exophthalmic goiter expresses two of the more important symptoms of the affection known by this name, it does not indicate the real nature of the malady. The functional disturbances that make up the morbid complex in its fullest form—the quaternary of symptoms—may be wanting in part, and yet the case be typically developed in respect of those that appear. Exophthalmos is rarely entirely absent, but it may be little more than a staring expression without any alteration in the muscular co-ordination of the movements of the eyelids and the globe; the thyroid tumor is hardly discernible sometimes, and the tachycardia and the pulsation of the cervical vessels may not be sufficiently obvious to attract attention. The one condition, however, that serves to unite the various symptoms into an actual complex, is the state of the sympathetic system, or of that part of it having more immediately to do with the circulatory apparatus. The clinical facts as well as the results of treatment show a paretic state of the cervical sympathetic dependent on some change in the thyroid body. The cases to be described exhibit this relation, and the results of treatment based on this conception of their character.

CASE I.—*Curative effect of the treatment as shown in the condition of the patient three years after apparent cure; galvano faradization of the cervical sympathetic and of the pneumogastric nerve; internal use of duboisin, picrotoxins, and iron and manganese, etc.* A young lady of about 20, after a winter of much social excitement, following convalescence from rheumatism, began to fail in strength and became pale and anemic, exercise causing distress of breathing and tumultuous action of the heart. Her eyes put on a brilliant expression, and although naturally prominent, became staring and then protuberant, and a goiter formed on the right side, soon assuming large proportions, and involving the isthmus and also the left lobe. The action of the heart became rapid, remaining above 100 continually, and paroxysms of irregular palpitation occurred at frequent intervals, during which the pulse beat rose to 170 and even higher. Several years before these symptoms appeared she had an attack of acute rheumatism which left the heart damaged, a well-marked mitral murmur continuing afterward, and to this was now added the usual murmurs and venous hum of anemia.

When she presented herself at my office, the case was a typical example of exophthalmic goiter, and no condition was wanting to make the clinical picture complete. The quaternary of symptoms—the exophthalmos, the enlarged thyroid, the tachycardia, the pulsation of the vessels—were all present.

Although changes in the structure of the heart are often present, they are not essential—only functional derangements are necessary to make the case a consistent one.

In considering the question of treatment, I resolved to carry out a plan with which I have usually succeeded—namely, galvano-faradization of the central nervous apparatus—the cervical sympathetic and the pneumogastric. The combined current—stabile—was applied daily from 10 to 15 minutes in duration for a year, excepting intermissions in her

attendance, amounting to about three months of that time.

Considerable skepticism, I am fully aware, exists in respect to the real effects of this central electrization, and, on the other hand, extravagant claims have been put forward. My own experience is favorable to this mode of treatment in cases of the kind in question. It may be assumed that if a remedy on each application manifests a power of a curative kind, although transient in effect, some permanence of result may be expected by persistence in its use. In this case, as in many of a similar character, when I have passed the current from the neck to the epigastrium, there ensued an immediate diminution in the number of the cardiac pulsations, and a distinct rise in the tension of the vascular system. Frequent repetition of the impression presently secured a permanent gain in the condition of the apparatus concerned.

The effects of galvano-faradization were supported by the administration of duboisin, picrotoxin, eserin, arsenic, manganese, and iron. The curative effects of these remedies were enhanced by hygienic measures, including a suitable diet, systematic exercise, and change of scene and associations. The improvement manifest from the outset soon became pronounced, and after some months recovery ensued. By recovery is meant the complete disappearance of all of the symptoms, with restoration of the health. Whether the mitral lesion has, also, disappeared I am unable to say, as I have had no opportunity of ascertaining the state of the heart by physical examination, but, as no rational signs are visible, compensation must, at least, have taken place.

CASE II.—*Disturbed circulation of the head and neck; flushing of the face and forehead; fulness of the head and exaggerated intracranial tension; persistent occipital pain; vertigo; staring eyes; rapid circulation.* This patient was a lady of 42, of full habit but not obese, in apparently high health, but suffering from headache, vertigo, occipital pain, and wearing glasses to correct visual troubles which were supposed to cause the head-symptoms. Every mental emotion was immediately represented by a more or less vivid flush extending over face, forehead, neck, and upper part of the chest. With the flush she experienced a sense of tension of the brain, and some occipital pain. Her eyes at the same time became suffused, and had a hot and tensive feeling. Any considerable use of her eyes caused burning, and vision became blurred. A variety of glasses adapted by an accomplished ophthalmologist failed to relieve the ocular symptoms, although persistently tried. Her eyes continued to have a staring expression, and were irritable from use. Her vision was good, barring some astigmatism. The movements of the ocular globe and of the eyelids were coordinate, and there was no ring of sclerotic visible above the iris.

The thyroid body was not enlarged. There were, however, persistent increase of heart-beat above the normal, and more or less constant pulsation of the cervical vessels, with paroxysms of more rapid action. Her morning temperature was 99° F. The tension of the radial and temporal arteries was above normal, but the condition of "rigid arteries" was not the cause; rather an overaction of the vasoconstrictor fibers, supplemented by a more rapid circulation, is, as I conceive, the true explanation.

During the period of suffering from the symptoms described, the eye-strain was supposed to be the real cause. The patient had no uterine disorder, nor, strange to say, had it been suggested to her to submit to some radical gynecologic operation.

The diagnosis lay between eye-strain as a cause of the visual and other disturbances and exophthalmic goiter incompletely developed.

The ocular headaches due to eye-strain arise from errors of refraction, errors of accommodation, and from defects in the extrinsic muscles of the eye. Of the errors of refraction that cause headache, the most common is hypermetropic astigmatism, and next in frequency is hypermetropia, but neither of these seemed to me to be in question here. According to some ophthalmologists, myopic astigmatism is a frequent cause, and even a slight degree of this defect may give rise to severe headaches. When the refraction of the two eyes is unequal hemicrania results, but the pain may also be diffused generally. The errors of accommodation causing headache may be due to paresis or paralysis or spasm of the ciliary muscle, and these conditions may depend on various causes of debility. Errors of the extrinsic ocular muscles, causing headache, are chiefly due to insufficiency of convergence. It is probable that none of these causes of eye-strain, if they existed, remained uncorrected. It may be assumed, therefore, that, as the symptoms persisted, some other influences were in operation, and that other measures beside correction of visual defects were necessary. That state of the vascular system which we find in exophthalmic goiter, in the absence of the exophthalmos and the enlarged thyroid, seemed to me responsible for the headache, the heavy tensive feeling, the occipital pain, the vertigo, and other symptoms.

The results of treatment confirmed this view; in other words, the therapeutic diagnosis harmonized with the results of treatment. The symptoms were promptly relieved by the administration of liquor barii chloridi, five drops every four hours. The high color, which had been constantly present, and the vivid flush, which appeared on every emotion, the staring expression of the eyes, and the tensive headache disappeared, the orderly balance of the circulation being restored. It seems to me, therefore, that the symptom-group manifest in this

case did not originate in any ocular defect, but the supposed eye-strain was one sign of a condition created by a functional derangement of the sympathetic. The study of this and analagous cases has seemed to me to illustrate how similar troubles occur at the climacteric period, and are due, no doubt, to corresponding causes.

CASE III.—*Goiter of several years' standing; persistent weakness and anemia; wasting; pulse habitually rapid, and occasional attacks of palpitation; efficacy of thyroid-extract.* This lady, 35 years of age, after her first confinement, experienced an enlargement of the thyroid of the ordinary character. After her second delivery, the growth assumed larger proportions, and now after ten years it is increased somewhat. The right lobe of the gland is the larger, but the isthmus projects forward, and has the elastic condition of a cystic growth. The tumor must, therefore, be regarded as glandular and cystic. Beside the slow increase in size, it has been observed to fluctuate in size, becoming larger at the menstrual periods, and lessening in size in the intervals.

Although pale and anemic, the patient's face, neck, and upper chest were quickly flushed by even a transient mental emotion. Her eyes were prominent and had a rather brilliant expression, but there was no exophthalmos. The enlarged thyroid had no pulsatile thrill or movement, nor was there a pronounced beating of the cervical vessels. The action of the heart was constantly rapid. The pulse-rate was habitually about 90, and any mental or physical effort sent it above 100 per minute. Her temperature was never under 99° F. These symptoms had been present for several years, but had so increased within the past year as to render motion or action unpleasant. She walked up-stairs with the greatest difficulty, and she got out of breath so quickly that she had lately abandoned all outdoor walking. Her body-weight declined from 152 pounds to 117. The menstrual function was irregular in time and scanty in amount, there being usually but a mere "show," and the intervals were two and three months in duration.

There could be no question that in this case there was a morbid complex having the usual characteristics of exophthalmic goiter. The eyes, it is true, were only brilliant and staring, but not obviously protruding, but the other symptoms, to complete the quaternary, were present. Although the historic picture was thus complete, the manner in which the malady developed was unlike the usual course in this disease. The structural changes in the thyroid body, we may suppose, stopped the production of the peculiar principle whose absence leads to the derangement in the functions of the cervical sympathetic. It seemed necessary therefore to supply this principle by the administration of thyroid-extract.

Galvano-faradization of the central apparatus—the cervical sympathetic, and the pneumogastric—by the stabile method descending, was carried on for several months, and after some preparatory treatment intended to increase excretion, consisting of a nightly dose of pilocarpin, and three times a day fifteen grains of sodium iodid; the action of manganese, arsenic, and iron was maintained for several months. A marked improvement slowly ensued. The patient gained many pounds in weight, the menstrual function reappeared in the regular way, and the bodily strength and action were fully re-established.

When she had thus reached a point from which her recovery was to be expected, she was attacked with acute rheumatism, involving the joints of the right lower and left upper extremities, but especially affecting the left wrist and hand, which remained stiff and painful several months after the pain and fever had disappeared. Notwithstanding this mishap, which necessarily reduced her strength and nutrition, the improvement secured was maintained, and even the enlarged thyroid, except its cystic part, continues to diminish.

In the treatment of this group of cases, the remedies were adapted to that view of their pathology in which disordered states of the cervical sympathetic regulating the blood-supply, and of the pneumogastric regulating the heart's movements, are especially concerned. The lesson which they especially teach is that neither the relief of eye-strain nor the use of neurotics, will remove the symptoms. These cases further show us that the flushings and other phenomena of the climacteric period may be due to similar disturbances, and are to be relieved by a resort to the same kind of remedies.

THE VALUE OF INFILTRATION-ANESTHESIA.

BY WELLER VAN HOOK, A.B., M.D.,
OF CHICAGO.

THE use of cocain in local anesthesia was at first followed by the most satisfactory results in operations upon the mucous membranes, the resorptive powers of which facilitated the application of the drug directly to the nerve-endings. In imitation of this natural method of reaching the sensory nerves, hypodermic injections of the same solution were readily thought of, and at once it became a practice, which is still popular, to inject strong solutions of cocain (from 2 to 10 per cent.) into the subcutaneous lymphatic spaces. The best results by this method are obtained when, as in the finger or penis, the return-circulation can be interrupted by circular constriction, and the entire dose be retained as a depot of anesthetizing material. Corning has used hard rings pressed upon flat skin-areas, in order to similarly interrupt the circulation of the fluids that tend to carry away the anesthetizing substance. Under this practice there are three zones of sensory nerve-activity—a zone of complete anesthesia corresponding to the area in which the cocain is in sufficient concentration to completely overcome the

sensibility of the nerve-endings and filaments, a zone in which sensation is partially inhibited, and an area in which the anesthesia gradually fades away.

It was easily seen that if by osmosis or by the mechanic movement of fluids the cocain were brought into contact with all the nerve-structures in approximately one degree of concentration, and if this concentration were exactly that required to inhibit nerve-action, the desired result would be accomplished with a minimum quantity of the drug.

Liebreich has shown, however, that the injection of simple water into the tissues in such a way as to produce an artificial edema would induce with some discomfort a transitory anesthesia. C. L. Schleich found that by combining a small quantity of cocain with a weak salt-solution the discomfort was removed and the anesthesia prolonged; and it only remained to add a little morphin to the solution to prolong the beneficent action sufficiently to give opportunity for the performance of surgical operations. Anesthesia depends, in this method, upon the artificial ischemia established; upon the high pressure to which the tissues are subjected; upon the lowered temperature brought about by the introduction of the cool water; and, finally, upon the direct action of the anesthetizing drugs. Leaving aside alleged personal disinclination on the part of European clinicians to adopt the method of Dr. Schleich, it seems to me that the failure of the infiltration-method up to the present time to become popular depends upon the fact that a special technic is required. This technic is, however, so simple and easy that American physicians, I am sure, need only read an account of it to understand and practise it. And, as local anesthesia can be induced by it in a few moments for the opening of abscesses, furuncles, or carbuncles, for the removal of a prepuce, or for the amputation of fingers, or even of the forearm, with the use of a solution of *one part of cocain in a thousand of water*, every intelligent worker must grant its advantages and apply it in practice.

The materials required for the procedure consist of a weak solution of cocain, morphin, and common salt, in sterilized water at the temperature of living-rooms, and a good ordinary hypodermic syringe. The formula for the solution is:

℞.—Cocain hydrochlorate . 0.1 (gr. iss).
Morphin hydrochlorate . 0.02 (gr. ⅓).
Sodium chlorid . . 0.2 (gr. iij).—M.
Fiat pulv.

Sig.—To be dissolved in 100 grams (℥iij–℥iij) sterilized water.

One will find it convenient to carry with him in his minor operating case a number of such powders, one of which can easily be dissolved in water, so that the solution is always fresh. Should the solution be kept for some days before being used, two drops of 5 per cent. phenol should be added to it.

Two other solutions are recommended—a stronger one containing double the quantity of cocain and a weaker solution containing only one-tenth the quantity of cocain. The very strong solution is useful for inflammatory lesions, the weak solution for prolonged and extensive operations; but for most cases the medium solution is best adapted.

It cannot too strongly be insisted that the value of these simple materials lies almost wholly in their application. The hypodermic syringe is to be used to fill the tissues to distention with the anesthetizing fluid. The needle is first introduced into the skin at the desired point, the syringe being held almost parallel with the skin. The first essential point for the beginner to learn is that the point of the syringe must not be pushed through the skin, as in administering an ordinary hypodermic injection of morphin, but must stop within the skin, so that the fluid when pressed out by the piston will distend the skin itself, raising a white, bloodless wheal somewhat like a mosquito-bite.

The author of the method, wishing absolutely to free his process from all pain, freezes the skin at the sight of the first puncture. This is easily done with ethyl chlorid, or with a spray of ether from an ordinary hand-atomizer. But the pain caused by introducing a hypodermic point is so small that I have never used the spray, especially as the application of cold is itself very unpleasant.

The area thus infiltrated is instantly anesthetic, and may be incised, punctured, or cauterized without sensation, so long as neighboring areas not yet rendered edematous are not interfered with. And this leads to the second imperative injunction upon the beginner—be sure the area you wish to operate upon is thoroughly infiltrated. The obvious converse to the proposition that the infiltrated area is anesthetized is that when pain is produced it is due to the operator's carelessness in not infiltrating the tissues incised.

The first small area having been anesthetized, it only remains to infiltrate a sufficient number of new circles adjoining the first to include the field of operation; and, as the first area is devoid of sensibility, the neighboring skin can be made edematous by painlessly inserting the needle near the edge of the wheal and forcing the fluid into the tissues from this insensitive point of vantage. Having repeated this process often enough to anesthetize the skin-area, the subcutaneous tissue is squirted full of fluid by passing the needle through the anesthetized skin. The fasciæ, muscles, and periosteum must be carefully anesthetized in the same way, and the operation may then be begun. It is needless to say that these proceedings are always to be carried out aseptically, the syringe and the water used being sterilized be-

fore being used. The anesthesia lasts about twenty minutes. If the operation is not finished in time the infiltration can be repeated.

Several simple but important points must be borne in mind in order to insure success under special circumstances. Of these, probably the most important is that inflamed tissues are hypersensitive and must not themselves be infiltrated until the neighboring normal tissues have been anesthetized. For example, to inject fluid into the apex of a furuncle without preparation would be a cruelly painful procedure; but if the operator carefully anesthetizes the skin all around the boil before infiltrating the inflamed structures, he will be able to open the suppurating focus absolutely without pain. Schleich is in the habit of advancing upon such abscesses from two foci upon opposite sides of the seat of infection.

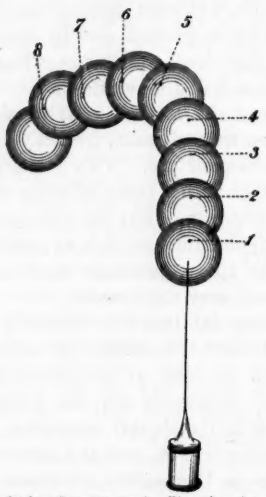

Diagram I. (After SCHLEICH.) Showing how the successive wheals are raised, the point of the syringe being inserted at the points marked by the dots.

I have found it necessary to use the finest and sharpest needle-points in working on such delicate tissues as the skin and mucous membrane of the prepuce, since, if the needle is pushed a trifle too far, the fluid lodges not in the skin, but under it, leaving the cutis sensitive. By observing this precaution I was able to avoid a general anesthetic in removing an inflamed tight foreskin from a man 72 years of age.

When large nerve-trunks have to be severed, a drop or two of five per cent. phenol is recommended to be injected as nearly as possible into the sheath of the nerve.

In amputating digits the infiltration should be begun from two points at opposite sides of the member, the infiltration being continued all along the line of proposed incision, and the deeper tissues, including the periosteum, being infiltrated with great care.

Recently I had occasion to extract a large, loose body from a man's knee-joint. After infiltrating the skin and subcutaneous areolar tissue, the capsule of the joint was similarly infiltrated, and with no pain whatever the joint-body—about 1½ in. long—was removed. The wound was sutured and the patient made a good recovery.[1]

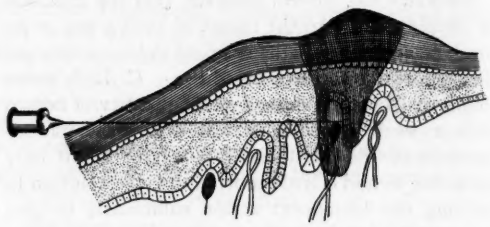

Diagram II. The syringe-point stops at the papillary layer and the fluid lodges in the skin itself.

At my request, Dr. A. F. Lemke, interne in the Cook County Hospital, has used this method in minor cases. His reports are quite satisfactory, numerous abscesses having been opened and a number of infected inguinal glands having been removed.

The most serious case in which I have practised the method was that of an operation (upon Dr. L.) for varicocele. Without my knowledge the doctor had taken so large a dose of whisky that he was in a state of hilarity, which interfered with the application of the anesthetic. Nevertheless, the veins were ligated through an incision an inch long; and, as the scrotum was very long and lax, it was amputated. The extensive wound was sutured. The pain felt was slight, and, I think, would have been almost

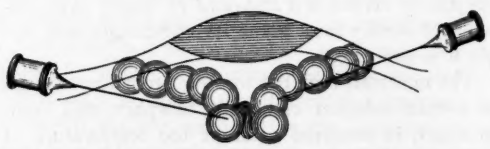

Diagram III. (SCHLEICH.) Showing mode of injecting the fluid under an abscess.

none at all if the patient had been in such a mental state as to give warning when imperfectly anesthetized areas were encroached upon.

Schleich has performed a number of celiotomies under infiltration-anesthesia, removing ovaries and tubes, etc. He will find few imitators in any but the most uncomplicated cases. But everyone will see the advantage of dispensing with general anesthesia

[1] This case was reported, with my permission, in the "Annals of Surgery," September, 1895, p. 328, Case II.

when abscesses originating in the appendix vermiformis are adherent to the abdominal walls and require simple drainage. Perhaps in no cases is local anesthesia more desirable in preference to general narcosis than in the primary opening and drainage of empyema-cavities, since even ether-anesthesia is dangerous when the thoracic viscera are compressed.

103 STATE ST.

SOME THERAPEUTIC (SURGICAL) NOTES.

BY ROSWELL PARK, A.M., M.D.,
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A NEW EXPEDIENT FOR DEALING WITH TOUGH AND INTRACTABLE STRICTURES OF THE URETHRA.

I HAVE recently had to deal with a long-recurring, exceedingly dense, and tough cicatricial contraction of the urethra, through which, after tedious effort, I succeeded in passing a filiform whalebone-bougie. Over this, as a guide, I endeavored to pass a variety of urethral instruments, but could coax nothing in the shape of a metallic instrument through the dense tissue. I then opened the deep urethra by perineal section, having the fine whalebone as a guide. Over the slightly bulbous extremity of this filiform bougie I tied tightly a piece of fine, braided silk. Withdrawing this through the urethra in a forward direction, I pulled through with it the silk, which I then proceeded to utilize as a fine chain-saw, in the same way that Abbe has succeeded in attacking esophageal strictures. With the fingers of one hand in the deep perineal opening, and with the other hand free outside, I could pull the silk backward and forward. Using it in this way as a very fine chain-saw, I succeeded in enlarging the canal. After repeated efforts the stricture was divided to a degree permitting a threading of the silk through the eye of a tunnelled urethrotome, which was at last passed down through the urethra, its blade separated, and the obstruction divided without further difficulty.

I am quite well aware that the necessity will very rarely arise for adopting this expedient. Indeed, this is the only time that I have ever failed in passing a metallic instrument over a whalebone, when once it had been made to find the passage. Possibly in this instance further maneuvering would have enabled me to adhere to former practices. So soon, however, as this expedient suggested itself, and was tried, I found that I saved time and accomplished my purpose more speedily, and consequently more easily for the patient, than I had feared was possible. The patient's recovery in this instance was uneventful.

A NEW AND IDEAL STYPTIC; A NEW COMPOUND OF ANTIPYRIN AND TANNIC ACID.

In THE MEDICAL NEWS of December 15 and 22d, 1894, I rehearsed some of my experiences with antipyrin as a styptic in surgical practice, stating that I had for years used a 5 per cent. solution as a spray, sterilizing the water before making the solution. This I had no hesitation in spraying upon any surface, peritoneal, cerebral, or other, from which parenchymatous oozing was taking place to an extent complicating the operation or jeopardizing the success of an ideal dressing. This therapeutic note attracted at least sufficient attention to lead to its pretty general use by surgeons in various parts of the country, from many of whom I have heard commendatory remarks, and from none of whom I have ever heard of disappointment in its use. The present note is to corroborate the favorable esteem in which I have long held this procedure, and to state that I have since resorted to it more widely and more generally for styptic purposes. Thus, I have no hesitation in using it in the urethra, or even in the bladder, in cases of hematuria proceeding from either of these locations. Even in the eye it may be used without fear, preceding its use by that of weak solution of cocain, though in this location the antipyrin-solutions need not be made so strong. On the other hand, it may be used in much larger percentage when the 5 per cent. solution fails to accomplish the purpose; even when small vessels spurt, compression for a few moments with iodoform-gauze or acetanilid-gauze sopped in this solution will often be effective.

As every physician will realize, there occur cases of bleeding—for instance, from the nasal cavity or from divided bone—in which even these solutions will be ineffective. My present object is to call attention to the *combination of antipyrin and tannic acid*, in solution, by which there is precipitated an intensely agglutinative and cohesive substance, of to me unknown chemic composition, which offers the most ideal styptic for certain purposes that I have ever dreamed of. This combination I hit upon by accident, and first resorted to in a case of apparently intractable hemorrhage from removal of adenoid tissue in the vault of the pharynx, in which I was called in consultation by my colleague, Dr. Hinkel. He happened to have at hand a bottle of alcoholic solution of tannin, while I was provided with antipyrin in powder. The case being emergent, I suggested the combination of the two styptics, and added the dry powder to the solution. To our surprise there was formed at once a gummy mass, at first flocculent, which quickly cohered, the result being a combination, the stickiness and adhesiveness of which quite astonished us. A small sponge dipped into the fluid containing this material in suspension was inserted into the postnasal space, and hemorrhage was instantly checked, not to again recur.

I have since experimented with these materials, and have found that they may be united in almost

any proportion with the formation of the gummy mass, and would suggest that the substances be mixed in proportion to the emergency of the case, and to the desire for little or much of the resulting compound. It is possible by adding strong solutions, or of pouring the powder of one into the solution of the other, to precipitate so much of the agglutinative composition as to make a gum that may be placed about the margin of the bleeding bone—for instance, in operations upon the cranium. Or a small piece of sponge or cotton sopped in this material may be forced into a tooth-socket, or in various other ways its use may be made to result in benefit and satisfaction. There is but one attendant difficulty: that it is so remarkably cohesive that when the time comes for detachment or separation of the tampon it is difficult to remove it. It may be even necessary to wait for sufficient time for the formation of granulations and separation by natural processes.

I strongly commend to surgeons experimentation with these solutions, and their own determination as to the strength in which it may be best to use them.

MORE WITH REGARD TO MUSTARD AS AN ANTISEPTIC.

In the same issue of THE MEDICAL NEWS to which I have referred, I endeavored to call attention to the remarkably efficient properties possessed by mustard as an antiseptic or sterilizing agent for the surgeon's hands, and for the skin of the part to be operated upon. One never goes into a house, or at least a locality, in which mustard cannot be easily procured, and my custom is to thoroughly rub and scrub my hands with a mixture of green or other soap, corn-meal and mustard-flour, using this for about five minutes. After rubbing it thoroughly into all the crevices and creases of the hands and nails by aid of a nail-brush, one may be absolutely certain that his hands are sterilized, no matter what he may have been doing previously. I have no hesitation in proceeding from an autopsy to the operating-room, if I may thus protect my hands. Used as indicated, the mustard leaves no unpleasant sensation; and one may feel that by the time it produces unpleasant tingling or rubefaction of the skin its essential oil has done its desired work as an antiseptic. I have discarded all other means of preparing the hands, and in several years' use of mustard in this way have never been disappointed, nor had the slightest reason to question its effectiveness. I might add also that it is an admirable deodorizing agent, and will take away from the hands all offensive odor of dead or dying tissues, all redolence of iodoform, etc.

Prof. König, of Göttingen, has been selected as the successor of the late Prof. Bardeleben in the Chair of Surgery in the University of Berlin.

CARDIAC MURMURS; THEIR DIFFERENTIATION AND INTERPRETATION; WITH SPECIAL REFERENCE TO "ACCIDENTAL" MURMURS.

BY ARTHUR R. EDWARDS, A.M., M.D.,
OF CHICAGO;
ATTENDING PHYSICIAN TO COOK COUNTY HOSPITAL; INSTRUCTOR IN PRACTICAL MEDICINE, NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

THE cardiac murmur is a subject of greatest diagnostic, prognostic, and therapeutic importance, regarding which certain authoritative and popular misconceptions prevail. Authors, especially of the French school, were inclined to draw broadest inferences from the loudness and timbre of heart-bruits, a tendency still manifest.

The loudness of a murmur sustains no invariable relation to the severity of the causal lesion. Guttmann states that the stronger the murmur the more marked is the underlying pathologic alteration, although he admits many exceptions and relies more upon other methods of examination. Dilatation and hypertrophy of a cardiac chamber signify more than a mere murmur of given intensity. I recall an instance of an enormously dilated heart characterized by a very loud, rough murmur, in which, after death, the valves were perfectly smooth. Gradually increasing stenosis and insufficiency frequently present physical conditions under which murmurs disappear. Cardiac examination in the ultimate stage of disordered compensation is often unsatisfactory, as an accurate study cannot then be made. I have observed a case of aortic regurgitation in which the murmur, previously recorded, disappeared three weeks before death. In such cases the diagnosis from myocarditis and kindred affections may be impossible. Valvular murmurs may disappear temporarily during an intercurrent febrile affection or be permanently buried under terminal tachycardia. Loudness bears an important relation to cardiac activity, a fact in which lies a diagnostic suggestion. Loudness may vary from day to day, and intensity alone does not influence prognosis, as a fainter murmur can signalize heart-failure.

Sahli states that standing or sitting intensifies murmurs that are weak in the prone position, while Eichhorst describes endocardial murmurs as becoming weaker or disappearing on standing. I have never been able to demonstrate any constancy between intensity and position, although Eichhorst's practice of examining patients in different positions obviates many errors.

French writers have said much regarding the timbre of cardiac murmurs, and have dogmatized that their acoustic characters determined sclerosis, calcification, or the degree of lesion. Eichhorst deprecates such generalizations, and denies their diagnostic value. Rough, smooth, blowing, or sawing murmurs depend on purely physical condi-

tions of the valves and bloodcurrent. Particular importance is attached to musical murmurs and those that may be heard at a distance. Aortic and mitral lesions have produced musical murmurs. At autopsies are found perforation of the semilunar valves (Schrötter), abnormal chordæ tendineæ across the ventricle (v. Drozda), torn papillary muscles, or relative aortic regurgitation (Groedel), but often no cause is found. Murmurs *par distance*, heard by the patient himself or by those around him, are musical, singing, or squeaking, and are observed in aortic stenosis (Stokes, Ebstein) and aortic regurgitation, but are sometimes accidental (Ebstein, Eichhorst). During the last year I attended a physician with great cardiac dilatation of arterio-sclerotic origin, in whom a relative mitral regurgitant murmur could be heard from the foot of the bed. It disappeared when rest removed the dilatation. Timbre has, however, a relative significance. Hard, calcified, rough valves often produce rough murmurs, as do also torn chordæ tendineæ, and loosened valves. Aortic regurgitant bruits are soft and blowing, while those of aortic stenosis are harsh and sawing. In mitral leakage the murmurs are loud but short, and in mitral stenosis faint, rolling, rippling.

One of the most important cardiac bruits is the "accidental" murmur, also known as inorganic, accessory, adventitious, functional, hemic, or anemic. Sahli properly objects to calling accidental murmurs inorganic or functional, as they may depend upon functional valvular disturbance; and, beside, not all accidental murmurs rest upon an anatomic basis. He rejects the term anemic, as accidental murmurs may occur from valvular insufficiency even in chlorosis and anemia; and, again, not all accidental murmurs are anemic. The division of murmurs as follows is proposed: 1. Valvular. 2. Functional valvular. 3. Accidental.

We can only speculate as to the pathogenesis of accidental murmurs. There are theories innumerable, but that advocated by Sahli seems most applicable, that the rapidity of the cardiac contraction explains the murmur. In acute anemia, as from hemorrhage, the resistance to the systole is reduced, and accidental murmurs intervene. In chronic anemia the quality of the blood is altered, and thereby the resistance to the systole is reduced, with consequent acceleration and accidental murmur. Cohnheim has produced a cervical venous hum by artificial hydremia.

The differential diagnosis of accidental murmurs is often difficult. Many sweeping statements have been made and criteria established whose unreliability has, in my experience, been conclusively proved.

The etiologic differentiation. Accidental murmurs may occur in health. Skoda found them in acute rheumatism, pregnancy, puerperal disease, carcinoma, typhoid fever, smallpox, and anemia. (*Percussion*, S. 212.) They are found in fevers, anemia, cachexia, and inanition from whatever cause. Whatever lowers bloodpressure, relaxes the arteries, and increases the heart's action may produce accidental murmurs.

Groedel affirms that the diagnosis is easy when there is a concomitant venous hum in the neck, which, according to Filatow, accompanies "anemic" bruits. Walshe could not remember an instance of organic heart-disease associated with an anemic *bruit de diable*. Rheumatism may argue for valvular disease. These laws assist in certain instances, but, like all statements that are not absolutely true, fail when infallibility is most imperative. For example, in a case without previous history, with high and somewhat irregular temperature, rapid pulse, diffuse furunculosis, delirium, involuntary evacuations, a dilated left heart, a loud, harsh, mitral murmur, no roseolæ, no diarrhea, no tympany, and no splenic tumor, the diagnosis lay between a late typhoid with an accidental murmur and septicopyemia with cardiac localization. The lack of alteration in the right ventricle turned the scale in favor of typhoid, and the diagnosis was established at the autopsy.

For the same reason the case of a Chinaman with a parotid abscess, meningeal symptoms, high temperature, and a loud, blowing, apical systolic bruit was diagnosticated sepsis without valvular involvement, and was confirmed after death.

Not every murmur observed in anemic patients is inorganic. Many are relative valvular insufficiencies, and Vierordt recounts two cases of pernicious anemia in which the diagnosis oscillated between organic and inorganic murmurs, with a final decision in favor of their functional origin. The autopsy, however, revealed endocarditis and very slight ventricular hypertrophy, the diagnostician having been baffled by concomitant emphysema. Valvular heart-disease may produce a profound secondary anemia, a confusing point rarely mentioned in this connection.

Physical examination of the heart. Only physical examination of the heart by methods other than auscultation can determine the status of a cardiac murmur. In organic cardiac disease are found hypertrophy, dilatation, loud or accentuated tones, tones replaced or accompanied by murmurs, and abnormal arterial phenomena, *e. g.*, anomalous sounds, the pulse, capillary pulse, etc. While considerable dilatation may complicate anemia, yet hypertrophy argues for organic change. Dilatation of either or both ventricles in anemia is neither marked nor attended with hypertrophy. Leube says that while the second pulmonary sound may be somewhat accentuated in anemia it is not markedly

so, nor is it palpable. In neglecting careful cardiac percussion physicians often err. With reliance upon exhaustive physical examination the diagnosis of heart-disease becomes one of the easiest, most satisfactory, and most accurate.

Systolic and diastolic murmurs. Regarding the cardiac phase of murmurs, the formal teaching prevails that anemic bruits are always systolic (Finlayson, Flint, Guttmann, and others). While they are usually systolic, such dogmatic statements cannot, I believe, maintain. I have observed and reported cases[1] in which anemic diastolic bruits were heard over the large thoracic and abdominal venous trunks, and functional diastolic murmurs were observed in relative aortic regurgitation. Sahli[2] has recently reported a similar series. A case of chronic cardiac exhaustion from overwork has recently been in my ward in which was heard an apical presystolic murmur, disappearing under rest, digitalis, and purgation. Fisher[3] cites cases of presystolic murmur dependent upon aortic disease, cardiac dilatation (concretio cordis cum pericardio), and once upon hypertrophy and dilatation of the right ventricle. The diastolic and presystolic phase *per se* has been overestimated in the exclusion of inorganic murmurs. I think I may expand Fraentzel's rule that systolic murmurs without other cardiac change do not imply organic disease, and assert that no murmur in itself, whether systolic, diastolic, or presystolic, definitely determines valvular lesion.

Localization. Hemic murmurs are heard mostly over the pulmonary area, but are often propagated to the apex. They occur rarely over the aortic and tricuspid valves. Latent aortic stenosis, without murmur or with ventricular change, may simulate inorganic bruits. Vierordt has found inorganic pulmonary murmurs sometimes quite confusing, especially when widely propagated.

Organic mitral lesions may be heard only over the anatomic seat of the valve at the base of the heart, on account of the retraction of the lung from the enlarged left auricle (Naunyn).

Timbre. In the earliest days of auscultation, Gendrin described inorganic murmurs as blowing, and sharply separated them by this point alone from the harsher organic bruits. Skoda (p. 212) expressly disagreed with Gendrin and insisted that no special emphasis could be attached to the character of a bruit. Guttmann describes accidental murmurs as being always short and blowing. Sahli explicitly states that a sawing, musical, or blowing murmur is not necessarily—although usually—organic. I have heard numerous very loud and coarse murmurs which were proved accidental by their ultimate clinical course or by postmortem examination. It is usually affirmed that inorganic are not as loud as organic murmurs (Leube, Sahli, and others). The murmurs of valvular disease may become very weak, or pronounced lesions may pass to autopsy without a bruit. Petit characterizes anemic murmurs as superficial, inhalation-like, and dependent on respiration.

Frémissement cataire, thrill, has been claimed as exclusively a sign of organic cardiac disease, a statement to which Eichhorst justly takes exception. V. Bamberger has said that anemic murmurs seldom cover a tone, but rather "hang on to it." Hutchinson's statement that anemic murmurs disappear on lying down has been disproved, although French authors (Petit, Potain) maintain that change of position alters the murmur. This fact cannot have differential value, for organic murmurs behave in the same fashion.

Feeble propagation has been long held as typical of accidental murmurs, but the same is true of mitral stenosis, and inorganic murmurs may be heard par distance. I have heard two anemic bruits in tuberculous cases in which the murmur was transmitted over the entire chest.

Appropriate therapy may differentiate organic from inorganic murmurs. Chalybeate treatment will often remove the anemic murmur and digitalis frequently correct functional valvular insufficiency.

A protracted clinical course will exclude accidental murmurs, which are inherently short-lived.

Hochsinger[1] has found that accidental murmurs do not occur before the fourth year; hence murmurs occurring before that age are organic, even though the physical findings do not concur, *i. e.*, are unattended with hypertrophy and dilatation.

Finally, accidental murmurs are diagnosticated only after logical exhaustive exclusion.

2818 INDIANA AVENUE.

[1] American Journal of the Medical Sciences, October, 1895.
[2] Correspondenz-Blatt. für Schweizer Aertze, June 15, 1895.
[3] Lancet, March 9, 1895.

PROGNOSIS IN PUERPERAL INSANITY.

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IN no class of cases of insanity is the prognosis so favorable as in those occurring in the puerperal state, either during pregnancy or lactation, the so-called puerperal insanity. Of 69 cases having this etiologic factor admitted to the State Hospital for the Insane at Danville, Pa., during the decade between 1883 and 1893, 53 were considered curable as having a duration of 2 years or less before coming under treatment. Of these latter 32 were classified as mania, and 21 as melancholia. Of the former 28 showed insanity of less than one year's

[1] Die Auscultation des kindlichen Herzens, 1890.

duration. Of this number 23 were discharged restored, and 1 as so far improved as to give a reasonable probability of complete recovery at home, making a percentage of 85.4 of recovery. Two were discharged not improved, after a residence in the hospital so short as to preclude any hope of change. The ultimate result in these cases is unknown to me. One died on the fifth day after admission, of the exhaustion of acute mania, complicated with septicemia, making the only case in which death was in any degree traceable to the mental disorder. But 1 is known to have become chronic, a percentage of 3.3 on the number of curable cases under treatment.

In the next class of patients, those having a duration before admission of from 1 to 2 years, the results were far less favorable, and emphasize the detrimental effect of long duration previous to treatment in this as in other forms of insanity. Of 4 cases but 1 was restored and 3 are known to have become chronic.

Of the melancholiacs 16 had a previous duration of less than a year. Of these 10 were discharged recovered and 3 improved, a percentage of 81.1. One was discharged not improved after a residence of 2 days, leaving an incurable residue of 3, or 12.4 per cent. Of 5 cases of from 1 to 2 years' standing, 1 was restored and 1 improved, and 3 became chronic.

That the prognosis is favorably influenced by the time that is allowed to elapse before placing the patient under suitable treatment, especially in maniacal cases, is shown in the percentages based upon the duration before admission. Of 21 cases of mania, having a previous duration of less than 3 months, 89.3 per cent. recovered, and none is known to have become chronic, the balance being made up of 1 who died, and 1 discharged not improved after insufficient residence. Of those of from 3 to 6 months' standing, 72 per cent. were restored, while 14 per cent. became chronic. Of those of longer standing than 6 months, 50 per cent. were restored, and 50 per cent. became chronic. Probably on account of the slower nature of melancholia, the influence exerted by treatment in the earlier stages does not seem to be so pronounced as in mania, though the rule holds good. Thus, of 8 cases under 3 months' duration, 75 per cent. recovered and 25 per cent. became chronic. Of 5 cases between 3 and 6 months, 80 per cent. were restored and 20 per cent. discharged, not improved, as stated. Eight cases having a duration of longer than 6 months, gave a recovery-rate of 62.5 per cent., while 37.5 per cent. are known to have become chronic.

The number of previous pregnancies does not appear to be a factor of importance in prognosis, as the results were about equally good in all cases, irrespective of the number of gestations.

Probably of more weight is the question of age at the first attack. Of 3 cases below 20 years of age none is known to have become chronic; of 14 between 20 and 25, 1 became chronic; of 14 between 25 and 30, 1 chronic; of 15 between 30 and 35, 5 or one-third failed to recover; and of those above 35, 3 in number, 1 became incurable.

The meager information obtainable in regard to the character of the labor fails to throw much light upon the influence of this factor in causing mental disturbance. From what could be learned, however, it would seem that in most of my cases the labor was normal, and that the complications incident to childbirth had little to do with the mental difficulty.

In this, as in all other forms of insanity, heredity plays an important part. Despite the well-recognized difficulty in obtaining reliable data as to predisposition, 20 of the 53 curable cases had neurotic histories. This fact does not seem to have exercised an unfavorable influence on the prognosis, as of these 20, 18 recovered, and only 2 became chronic.

CLINICAL MEMORANDUM.

A CASE OF ADDISON'S DISEASE,

Treated by Ingestion of the Adrenals of the Sheep. Floating Kidney with Diseased Adrenal Palpable.

BY CHARLES G. STOCKTON, M.D.,
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ON the 17th of June last there appeared for examination Mrs. P., aged 40, married, and the mother of one healthy child. Her father died at 68 from debility. Her mother, who died at the same age, was never strong; was tall, thin, and very much resembled the patient in every way, and it is said that she suffered from some affection resembling that for which the daughter now sought relief. No other deaths had occurred in the family. There are three brothers and four sisters living and well.

Previous to the advent of the present disease the patient had never been seriously ill, but had always been constipated, and when young suffered from sick-headaches. After her confinement she had some uterine affection. For the last seven years she has suffered from diarrhea, and her strength was thereby so much reduced that it is difficult to determine the inception of her present trouble. At present, and for at least three years past, she has complained of weakness, shortness of breath, palpitation of the heart, loss of flesh, vomiting and diarrhea, great muscular debility and intense bronzing of the skin, which, over the region naturally pigmented, presents the color of dark mahogany. There is also unnatural pigmentation of the mucous membrane of the lips, cheeks, and pharynx.

The patient now weighs 112 pounds; her former weight varied from 130 to 150. She suffers no pain, and, indeed, there are few abnormal manifestations save that she is sleepy much of the time. She has imbalance of the ocular muscles, and doubtless has astigmatism. The pulse is somewhat slow and

feeble, at times very infrequent, and there is moderate arterial sclerosis. The area of cardiac dulness is slightly increased; the heart-sounds are feeble, but without bruit; on exercise the heart is tumultuous. The capillary circulation is poor, the extremities cold and often clammy. The respiratory apparatus is without apparent fault. She suffers much from sore-mouth; at present there is a deficiency of epithelium, particularly over the tongue. This organ is tremulous, flabby, and shows too much venous engorgement.

During the past year the patient has suffered from regurgitation of food, and that retained shows but little change after having been in the stomach for hours. The gastric contents were aspirated on June 21st, three hours after a test-meal of meat, bread, and water. The food was found all present, water-soaked, and not digested. It was necessary to introduce the tube 25 inches from the teeth in order to empty the stomach. There was slight obstruction to the passage of the tube through the cardia; there was no evidence of digestion. There was an absence of odor and of mucus; the acidity was very faint; hydrochloric acid was absent; lactic acid appeared as a mere trace.

Although occasionally annoying, the diarrhea is not now so much in evidence as in the past. The area of liver-dulness is four inches in the nipple line; the liver lies lower than usual, and is to be felt below the free border of the ribs. The spleen is slightly enlarged; both kidneys are movable, the left distinctly floating. Above the left kidney, closely connected with it, moving with the kidney, yet movable while the kidney is held still, is an irregularly shaped body, about the size of a hen's egg, which is slightly tender upon pressure. It is presumed to be a diseased adrenal.

The examination of a 24-hours' specimen of urine showed that it was highly acid, brownish, cloudy in appearance, its specific gravity 1025, without albumin or sugar, a moderate reaction for indican, and no reaction for urobilin or bile. The total amount passed is 832 c.cm., containing 18.30 grains of urea. Microscopically, nothing of importance was revealed. Examination of the blood showed 1,800,000 red corpuscles to the cubic millimeter. There was 30 per cent. of hemoglobin present; there were many megalocytes and macrocytes and marked poikilocytosis. The lymphocytes were present in large numbers.

Previous to the examination described the patient had, for some months, been taking iron and arsenic, besides other tonics. These remedies were continued, and in addition she was advised to inhale five gallons of oxygen-gas three times daily, and to eat daily two uncooked adrenals from a sheep.

This treatment was begun June 23d, and on the 6th of July the patient returned and showed great improvement in color and general appearance. Her courage had returned with her appetite. She was hungry for the first time in five years, she said. There was a diminution of the pigmentation; there was a decided increase in strength, and the red blood-cells had risen to 3,000,000 to the cubic millimeter; there was also a decided change for the better in the appearance of the cells. The improvement has since then steadily progressed, and on September 14th there were 4,000,000 red blood-cells to the cubic millimeter, 80 per cent. of hemoglobin, and a very striking change for the better in the shape of the corpuscles. There was now polymorphous leukocytosis, with perinuclear granules taking the basic stain. Subsequently there was a polynuclear leukocytosis.

On September 27th, the stomach-contents were again examined, and although the patient had shown so much general improvement, and had regained six pounds in weight, no change for the better could be discovered in her digestion. Hydrochloric acid and pepsin had been added to the treatment during the past four weeks. Her bowels had been occasionally loose and some undigested food had passed, but with these exceptions there had been no complaint referred to the digestive tract. From her sensations she supposed that her stomach was quite well. As to the pigmentation, it has at this writing almost entirely disappeared from the hands, face, and breast. There are slight remains of the patches of dark brown about the cheeks, but these are scarcely noticeable. The areolæ of the nipples are no darker than is common with women who have borne children. About the waist and over the abdomen a moderate amount of pigmentation is still observed. The most striking improvement is seen in the pulse, which is now large, strong and frequent. The blood-pressure is considerably above that of health, but it does not show that high tension mentioned by Prof. Schäfer[1] and Mr. Oliver.[2]

This treatment was begun some weeks before the experiments reported by Schäfer and Oliver had reached me, otherwise I should have been more careful as to the quantity of adrenal allowed the patient. I discovered that she rather enjoyed the glands, prepared as a sandwich, and on some days had taken three instead of one or two as originally directed. As no untoward effects followed the ingestion of the adrenals I have allowed the patient to continue without restriction. It is a matter of interest that so large an amount can be taken without causing discomfort to the patient. At this day, October 1st, the patient is in better health than she has been for five years, and insists on pronouncing herself well. All medication has of late been withdrawn save hydrochloric acid and pepsin.

I am not prepared to say how much benefit may have been obtained from the oxygen administered, although so far as the arsenic and iron are concerned they had been taken by the patient some time before she had come under my observation, and without benefit. It is my judgment that improvement has been wrought mostly by the eating of adrenals from the sheep. One cannot but be suspicious of an adrenal that is palpable in a woman forty years of age, such an enlargement being too suggestive of malignancy. It will be noted, however, that the blood-examinations afford the hope that the adrenal disease is not carcinomatous in nature.

436 FRANKLIN ST.

The Revival of the Index Medicus.—The number of subscriptions to the *Index Medicus* officially received up to November 5th is 174. It is earnestly hoped that the requisite two hundred will have been received by December 1st, when the question of discontinuance or revival will be definitively determined.

Dr. David D. Stewart has been elected Professor of Diseases of the Stomach and Intestines in the Philadelphia Polyclinic.

[1] Brit. Medical Jour., Aug. 10, 1895. [2] Ibid., Sept. 14, 1895.

THERAPEUTIC NOTE.

THE USE OF BELLADONNA IN PEMPHIGUS.

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IN a disease that is so stubborn to treatment and frequently so distressing as pemphigus, any amelioration by means of a drug is thankfully acknowledged. Belladonna and its alkaloid atropin have been used in pemphigus, and some benefit has been ascribed to them. The main interest in the case in hand, however, lies in the circumstance that the reason for the improvement seems to be clearly shown.

On August 5, 1893, a brunet boy of 15, of Polish Jew parentage, limped into the San Francisco Polyclinic. He was suffering from blebs of the feet of such severity as to seriously interfere with locomotion. They had never appeared in any other locality and the majority of them came on the soles.

His father, whom I saw later, said that these blisters first appeared at four years of age, coming on in the summer and ceasing in the winter, but for the past three years they had been continuous through both summer and winter, being, however, worse in summer. The severest attack

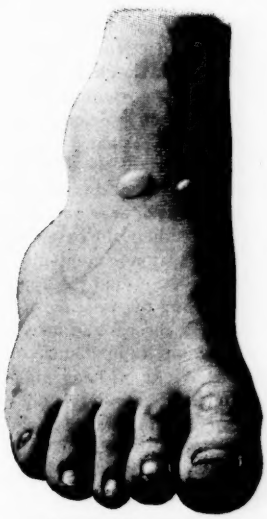
FIG. 1.

Aspect of sole of foot.

the boy had ever had was that for which he first consulted me in the summer of 1893. The severity of the affection in the summer season is a noteworthy fact, because, as we shall see further on, temperature has always had a decided influence in this case.

The contents of the blebs were of a clear, amber color, of alkaline reaction, and with heat and nitric acid, gave an abundant precipitate of albumin. There were enough red blood-corpuscles in some of the blebs to tinge the contents red, or even give them a violet color, and sometimes enough fibrin to coagulate the whole or a part of the fluid into a jelly. Apparently there never was enough migration of white blood-corpuscles to make the contents purulent, except as a consequence of

FIG. 2.



Aspect of dorsum of foot.

secondary infection, and unless such infection took place there was no inflammatory areola around any of the blisters. Aside from undue perspiration of the feet, there were absolutely no symptoms that could be referred to the nervous system, unless the formation of the blisters themselves be looked upon as evidence of nerve-derangement.

The boy had wet the bed almost every night as long as he could remember. In every other respect he enjoyed good health. There was no spontaneous pain, only tenderness due to the lesion of the epidermis; there was no analgesia, no paralysis, and no tenderness along the nerves. The muscle-reflexes were normal and the boy could stand with his eyes closed. The sensations of touch, pain, locality, heat, and cold were also normal. These facts are brought out to show that the pemphigus in this case was not a mere symptom of leprosy or of some disease of the nervous system, but, so far as our present knowledge goes, it was an independent disease.

There is a curious disease characterized by an hereditary propensity to the formation of blisters on the reception of slight injuries. This affection is now named hereditary inclination to the formation of blebs, and was first described almost simultaneously by J. Wickham Legg[1] and by Goldscheider,[2] and I at first supposed that the present case might be an instance of it, for the history given me was misleading. The patient told me that he had been subject to this affection from his earliest recollection, and his aunt said also that he had always had it.

[1] St. Bartholomew's Hospital Reports, 1883, vol. xix.

[2] Hereditaere Neigung zur Blasenbildung, Monatshefte f. prakt. Derm., 1882, No. 6; Abstract in Vierteljahressch. f. Derm. u. Syph., 1883, p. 145.

Furthermore, the immediate cause of the bad outbreak for which he came to me seemed to me to be the wearing of a new pair of shoes. Later on, however, I learned from his father that the boy had been perfectly well up to the age of four, when the present affection began, and that it had appeared intermittently ever since. The father, who was a worthless fellow, enjoyed good health, and said that none of the other members of his own family, or, as far as he knew, of the family of the boy's mother, had ever had any such affection. The boy had a sister and a brother, aged respectively 17 and 13, both of whom enjoyed good health, and had never been afflicted with any trouble resembling pemphigus. His mother had died about seven years previously, probably from some accident during confinement.

Now the essential features of the disease described by Legg and Goldscheider are that it is hereditary and congenital, and that the blebs appear on the reception of a slight trauma. The affection in the case under consideration was neither hereditary nor congenital, and I concluded on longer observation that the appearance of the bad attack mentioned and the wearing of the new shoes were simply coincident, for he had no special inclination to get blisters from traumatisms. Therefore the disease described by Wickham Legg and Goldscheider was definitely excluded. The case was not one of dermatitis herpetiformis, or Duhring's disease, for there was no dermatitis. It was not at all like a case of cheiropompholyx, lacking entirely the little sago-grain-like vesicles between the fingers and toes.

There seemed, therefore, no doubt that this was an instance of that interesting group of cases to which probably the name of pemphigus ought to be limited, in which the entire lesion consists of an eruption of blebs, having a symmetric distribution, a chronic course, and a tendency to recur.

We had, therefore, the kind of case, which, according to Hutchinson, should yield readily to treatment with arsenic, for the patient was young and in good health, and had a sound stomach, and, above all, had no blisters in the mouth. The boy began taking Fowler's solution on August 5, 1893, in two-drop doses, t. d.; on the 8th the dose was doubled; on the 12th, he took 5 drops; on the 15th, 7 drops; on the 22d, 10 drops; on the 26th, 12 drops, which he continued up to August 29th. He then complained of severe frontal headache, and as the blistering continued without cessation or amelioration of any kind, and, as I feared, because of the intense headache, one of those sudden explosions of arsenic in the nervous system, it was determined to abandon this line of treatment.

About this time it was noticed that the cutting-edge of the upper central incisors, instead of being straight, was concave. The teeth were excellently shaped in every other respect, being of normal size, with straight lateral borders, perfect enamel, and well set, so that they could not be called Hutchinsonian. Furthermore the boy had a well-shaped head and good skeleton, with no affection or history of disease of the eyes, ears, or nose. The father denied ever having had venereal disease, and there was no history of miscarriages in the family. In addition to this, the pemphigus in this case was decidedly unlike a bullous syphilid, which is inflammatory from the start, occurs almost exclusively in infants, lasts only during the secondary stage of syphilis, and denotes a profound cachexia. Potassium iodid was, however, tried for a short time, without results.

On September 12, 1893, the potassium iodid was stopped and the boy was then given 3 drops of tincture of belladonna, increased, on the 19th, to 4 drops. Decided improvement now set in and for about one week no new blebs formed. A few new blisters then appeared and the belladonna was increased up to 6 drops t. d., but without entirely controlling the formation of the blebs.

The patient now disappeared for a number of months, to return the following summer, and it was then that I hit upon the probable mode of action of the belladonna. While he lived in Denver, which is cold in winter and warm in summer, his feet perspired profusely only in summer, and he had pemphigus there only in the summer season. On coming to San Francisco, where it is never very cold, blebs formed all the year round, but in sufficient number to seriously inconvenience him only in summer. One of the best-known actions of belladonna is its power of controlling perspiration, and in doing this it put this lad's feet in the same condition in this regard in summer as in winter. It was then thought that if this were the only action of the drug, it would be as well to use it locally, and a small amount of belladonna was applied to the soles, and with satisfactory results. Blebs formed, but not in sufficient numbers to especially incommode the boy. One of the great objects of medication was fulfilled; although it did not cure the disease, it rendered this tolerable.

MEDICAL PROGRESS.

An Effectual Method of Treating Extensive Malignant Disease of the Breast.—LANE (*Lancet*, No. 3763, p. 904) recommends amputation of the arm at the shoulder in certain cases of carcinoma of the breast in which the skin is so extensively infected that sufficient covering for the raw surface is obtained with difficulty, if at all. It is reasoned that the patient will die if not operated upon, and the arm will be a source of distress, owing to interference with its circulation; so that the removal of the member is really not a serious deprivation. An illustrative case is reported. An unmarried woman, 29 years old, presented a carcinoma of the breast, which had been observed for five months. The mass was large, and involved almost the entire breast. The skin over it was adherent, and was ulcerated over a space perhaps 1½ in. in diameter. All about the ulcer and for an area around the breast the skin presented minute nodules of infection. There were enlarged glands in the axilla, and in the subcutaneous tissue over the coracoid process a gland could be felt, which had apparently been infected from some cutaneous nodules just below it. There was no evidence of general metastasis. The situation was explained to the patient, and extirpation of the malignant disease with amputation of the arm proposed and acceded to. An incision was made along the length of the clavicle to the middle line and the middle third or more of the clavicle exposed and removed. The subclavian artery and vein were tied at the margin of the scalenus anticus, and all the areolar tissue and glands in the subclavian triangle carefully dissected out. There was no obvious infection of these glands, but beneath the clavicle the upper limit of the enlarged axillary

glands was defined and the glands were turned downward. Great care was taken not to injure the suprascapular or other vessels crossing the subclavian triangle. From the inner limit of the horizontal incision another was carried down vertically along the middle line for about 9 in., well outside the limits of skin-infection. From the lower end of this another incision was carried backward to the posterior axillary fold, at what seemed to be a safe distance from the growth, and then it was run upward along the posterior fold to the axilla, whence it ran across the arm to the outer end of the clavicle. A vertical incision was made from the upper limit of the posterior axillary fold to the elbow, where it was crossed by a circular incision. The skin and subcutaneous tissues were dissected up off the deep fascia as far as the deltoid, out of which a large and sufficient flap was cut to insure as much vascularity of the flap as possible. The inner part of deltoid was removed and the limb disarticulated. The skin and the subjacent soft parts were dissected off the sternum, clavicle, ribs, cartilages, intercostal muscles, serratus magnus, and posterior wall of the axilla; and the great square flap, which measured more than nine inches along each side, was fitted accurately and comfortably into the large exposed raw area. The part that corresponded to the circular incision around the arm was united to the edge of the median or sternal incision, while the edges of the vertical incision in the arm were connected with the upper and lower horizontal incisions in the thorax. Very little blood was lost during the operation. The growth was found to involve the greater pectoral, but the most careful subsequent examination of the parts excised showed that the primary growth, the skin, and the glands were very freely removed. The wound ran the usual aseptic course, and was unattended with pain or discomfort.

Changes in the Lungs of a Patient Treated with Tuberculin.—ADAMI (*Montreal Medical Journal*, September, 1895) relates the history and the post-mortem appearances in the case of a man who had been treated with tuberculin for a year. At the time of coming under observation the man presented cough, hemoptysis, nightsweats, and progressive emaciation. These disappeared and health seemed to be entirely restored. In the course of five years, however, the symptoms returned and death took place in an attack of hemoptysis. Upon postmortem examination firm adhesions were found at the apices of the lungs, which showed marked fibroid changes, and contained well-encapsulated caseous masses and small, contracted cavities. In these parts the tuberculous process had evidently been arrested, but the rest of the lung-tissue contained numerous miliary tubercles distributed along the course of sundry bronchi. The tubercles were most numerous in the neighborhood of the old mischief; they were surrounded by very little pneumonic disturbance and were rather of the fibroid than of the rapidly advancing type. The second attack was thus not the result of fresh infection, but of the recrudescence of the old process starting from the incompletely healed disease-foci. The nature of the lesions indicated either relative attenuation of the virulence of the bacilli or increased resistance on the part of the tissues.—*British Medical Journal*, No. 1817; Epitome, p. 68.

Fever in Nephritis.—As the result of a clinical study, STENGEL (*American Journal of the Medical Sciences*, November, 1895, p. 522) maintains that fever may occur in the course of nephritis at the onset of an acute attack, as a result of the infection or intoxication causing the disease or of the inflammatory or degenerative lesions in the kidneys themselves; in the course of acute or chronic nephritis as a result of various complications; and in the uremic state. The fever associated with uremia may be sudden and pronounced and attended with coma, delirium, and convulsions; or it may be more general, more lasting, less marked, and associated with typhoidal symptoms.

Metritis of Uremic Origin.—At the French Congress of Internal Medicine, recently held at Bordeaux, DU MAGNY (*Mercredi Médical*, 1895, No. 41, p. 487) described a special form of metritis developing in the course of uremia, and characterized by a vaginal discharge of varying degree and color, of irritating properties, and manifesting an odor like that present in cases of uterine carcinoma. On palpation the uterus feels enlarged and softened in places. On ocular examination the cervix appears reddened and swollen, and its lips are the seat of numerous small prominences of varying size, resembling nodules of epithelioma. All of these phenomena disappear with the other uremic manifestations.

THERAPEUTIC NOTES.

Toxic Effects from Acetanilid Applied Topically.—BRIGGS (*Occidental Medical Times*, October, 1895, p. 596) has reported a case of circumcision in an infant a week old in which topical applications of acetanilid were followed in the course of 24 hours by profound general cyanosis and a pinched expression of countenance, with coldness of the extremities. The removal of the drug from the wound, in conjunction with the employment of artificial heat, was soon followed by disappearance of threatening symptoms.

The Serum-treatment of Anthrax.—At the recent Congress of the Italian Society for Internal Medicine SCLAVO (*Lemaine Médicale*, 1895, No. 54, p. 466) related the results of experiments with the blood-serum of goats immunized to anthrax. Such serum injected into rabbits conferred immunity and displayed also therapeutic activity. An injection of from 5 to 10 c.cm. made twelve hours after the injection of a fatal dose of virulent anthrax-bacilli prevented death. A rabbit injected with protective serum twenty-four hours after receiving an injection of virulent anthrax-bacilli lived four days longer than a control-animal untreated with the serum.

The Treatment of Diphtheria with the Antitoxin.—According to the results of an official collective investigation there were treated in Germany with the antitoxin, during the year 1894, 6626 cases of diphtheria—2460 in the hospitals, 4166 in private practice. Among this number there were 5726 recoveries (86.5 per cent.—80 per cent. in the hospitals, 91 per cent. in private practice) and 855 deaths (12.9 per cent.); while 45 cases (0.67 per cent.) were under observation at the time of report.

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SATURDAY, NOVEMBER 16, 1895.

PROGRESS IN MEDICAL LANGUAGE?

THE last thing people study accurately and with interest is the thing that is nearest them. Astronomy was among the first objects to interest the human mind, and to-day we know more about geology than we do about physiology, more about physiology than about psychology. Educators have lately been in turn perplexed, amused, and disgusted by the fact that our undergraduates in the leading colleges of our country, after studying a half-dozen other languages, and "all things knowable," cannot write a single grammatic or accurate English sentence. This instrument, their native language, used earliest, most constantly, and throughout all intellectual and social life, is not studied, not improved, and not cared for. This fact seems strange, and strange it is, but it is as true as it is strange.

An equally astonishing fact, but one that is a mere corollary of the first, is the ludicrous conservatism of a few people about their language. We say this is a corollary because the blind opposition on the part of these people is due to utter inattention, to complete philologic ignorance. Their scholarship ends in having deep-rooted prejudices, the bases of which they have never for a moment examined. They have never examined the laws of language-formation ten minutes. Ask them what is Grimm's law or what are Skeat's rules, and they would be sorely puzzled; but ask them what the proper spelling of *hemorrhage*, or of *symphysiotomy* is, or what is the proper pronunciation of *phthisis*, and they are ready with a cocksure answer—an answer, of course, that coincides with that of the dictionary they happen to have bought.

It only needs, it would seem, a very moderate degree of critical acumen to observe that languages are formed by variations from a parent stem, and this process of variation can no more be stopped than can any evolutionary process. The appeal to authority, the attempt to thump an objector into silence with a dictionary, is of no avail. The truth is that language, perhaps more than any other product of the human mind, is convincing evidence of the character of the people who speak it. When a language ceases to grow and change, it is because the minds of the nation have ceased to be expansive and progressive. Look over the nations of the modern world and each is an illustration. The Latin is dead and changeless, the Spanish, if not dead, is as changeless as the speakers; the French is as crystallized as the French character; but it is the German and the English that are alive and rapidly undergoing modifications. In English the living, nervous, mobile-minded American is making additions to and modifications of his language that justly or unjustly provoke the amusement or scorn of his slower-going insular parent.

If minds and civilization are progressing this progress will find expression and proof in language. Whether written or spoken, language is a tool of thought and intercourse, and it is indubitable that all progress is conditioned upon perfection of instruments. It is, therefore, fatuous idleness to oppose the trend of change bound to take place in the word-tool of a people so ingenious and pushing as the American. Call it slang for a while, keep it out of print, stigmatize it with quotation-marks—do what you will—all is in vain. The part of discretion would seem to be conservative change. Genuine, that is wise, conservatism will bow to the inevitable and use it. Blind prejudice will oppose every sign or hint of change, whether good or not so good, and thus transform evolution into revolution.

An hour's reading of the results of philologic study would, or should, upset the prejudice of those who withstand as outrage any slightest suggestion of shortening the language. We argue for no sudden

and violent changes; phonetic spelling is as impossible as it is (at present and to us) absurd. This is true at least as regards English. In Germany scientific and medical books are to-day printed with phonetic modifications that seem utterly revolutionary, and that certainly would have made each particular hair of Goethe's head stand on end in horror. It argues well for the quick adaptiveness and the scientific thoroughness of the German character, and bespeaks an originality and perpetuity of German science for which we may sigh in vain. In comparison with it how silly and stupid seems the bigotry of the few Americans and the many English who look upon the abolition of a hyphen, a dieresis, or a diphthong, as a sin and crime against Heaven's high law.

Much confusion of mind and ridiculousness of practice exist as to the anglicization of foreign words. This confusion arises from nonobservation of a simple rule of common sense. If the word is so infrequently used as not to be understood by the majority of readers it would seem plain that it should be considered a foreign word and italicized. But if it is a word so common that everybody knows at once what it means, why bother the editors, printers, proof-readers, and ten-thousand readers with the absurd italics? Let us abolish such useless foreign expressions as *per rectum*, *per os*, etc., when English can express the thought as well or better.

But if not italicized, what reason, anthropologic or philologic, is there for accents, diereses, and diacritic marks? They are not only useless, but are "eye-sores" and botherations to everybody concerned. They increase pedagogic labor and handicap education. They can never teach pronunciation, and in nine journals out of ten they are bunglingly and erroneously placed. They spoil the dispositions of type-setters, of teachers, and of pupils. Let us away with them! Let us write and print in "Roman" and in English, role, debris, ecraseur, raphe, regime, etc., etc.

Dieresis, accents, and diacritic marks are not in harmony with the spirit of the English language. They cannot teach pronunciation, and they are wholly unnecessary to separate two adjacent vowels that are to be pronounced separately. Who to-day writes *poĕtry*, *poëtic*, *coöperation*, *diëresis*, *myösis*, *mammalïa*, *aërial*, *aörist*, *aörta*, *manïa*, *aërate*, and a thousand words ending in *eöus*, *ïa*, *iöus*, *etc.*, as we have here written them? Why not also drop the dieresis out of *zoology*, *microorganism*, *oophorectomy*, *ptomain*, *leukomain*, *etc.*? If one pronounces them *zool-og-je*, *oof-or-ek-to-me*, *to man*, etc., he needs a common-school teacher's birch rod and not diereses and hyphens to help him. There are seven different ways of pronouncing the termination *ough*. Who will undertake to tell an ignoramus by diacritic marks how to pronounce it in all cases?

A great idol of the verbal idolater is the little hyphen, a somewhat that is rarely used when it should be used, and is used a thousand times when it should not be used. The conservative stickler is up in arms if you leave it out of *postmortem*, *antitoxin*, *culdesac*, *postpartum*, and the like, and yet it cannot be found in the Latin or the French originals. His scholarship is exhausted by the fact that in his dictionary the hyphen is there. Who put it there, and why it is there, what wonderful function or sense it has there, would puzzle any philologist, but it doesn't trouble protester. One correspondent was shocked because he saw the word extrauterine printed thus. Extra-ordinary, certainly! If the hyphen were stuck in between the compounds of every word made up of *extra*, *intra*, *ex*, *ab*, and the rest, the type-founders would for long be kept busy making hyphens, and our printed pages would look much as if composed of telegrapher's signs. The chief function of the hyphen is to conjoin two English words (complete in themselves when standing alone) when the double term is used as a single idea, and especially when the two words are nouns. It is a growing and reprehensible habit of all of us to use nouns as adjectives. Thus, instead of saying *renal disease*, *cardiac lesion*, *dermal affection*, etc., we seem determined to say *kidney-disease*, *heart-lesion*, *skin-affection*, etc. If we feel compelled to do so, let us at least see the hyphen.[1] But when we use nonanglicized Latin words, such as *post*, *extra*, *intra*, etc., the hyphen is useless luggage, and the component parts should, with rare exceptions, be run together, as is done with tens of thousands of our common words. *Anti-toxin* is as absurd as would be *anti-pathy* or *anti-septic*. The hyphen in *extra-uterine* is as redundant as it would be in *extra-ordinary*. And so on to the end! There are a number of words that, thoroughly anglicized as they are, and commonly printed as two words, might with great advantage be run together and form one word. Such, for example, are *postmortem*

[1] We recently saw an advertisement of a lost child—"A dark skinned boy," it read.

(either as a noun or an adjective), *postpartum, vasomotor, microorganism, nonelastic, culdesac*, etc., etc.

In the crying need of condensation in medical writing that exists, it would save tons of paper every year, and much besides the paper-bill, if we would usually put our numbers in figures instead of spelling them out.

There is nothing more suggestive of the originality and progressive character of the American medical mind than the almost universal acceptance within the past few years of a few changes in the direction of brevity and usefulness in the spelling of a few of our medical terms. To be sure these changes[1] are at best or at worst somewhat trivial, but they prove that just as we are anxious to perfect our therapeutic and surgical instruments so we may hope for further progress in our most used (and most barbaric) tool, language.

LIGHTNING AS A REMEDY.

THE privilege of having been born in the nineteenth century is not confined to the enjoyment of trolley-cars, bicycles, and football. A still greater blessing is to be a contemporary of the New York electro-therapeutist, who was recently exploited by the *Herald*. The reporter who got up the interview and designed the headlines must have had more reward for his trouble than the mere consciousness of having done good. Perhaps he took a "shock," in part payment—his style, in fact, suggests that he he had had several shocks, some electric, and others alcoholic.

The reporter announces, through the columns of the *Herald*, that there is a female physician in New York City who has attained a good practice, and that "lightning is her remedy." We should like to give her name; and would, but that it is against our conscience to advertise anyone gratuitously. We simply wish to call attention to her lightning. She keeps this on tap somewhere "near to the heart of the East Side" of Gotham, where it seems from all reports to be badly needed. She has a dispensary, "which is fitted up with a thought for the impression in the way of an example in house-furnishing it might leave upon the minds of the housekeepers who wait within its walls for medical help." How like a woman! Tidy, neat, suggestive, hypnotic! House-furnishing and lightning—all in one dispensary and in one paragraph. And then, too—how like a reporter, to write of a room being fitted up with a thought!

This wondrous dispensary, thus fitted up with lightning and with a thought, contains also a Thomson-Houston alternating current with a pressure at 104 volts; also a dark-room for an electric bath; also tiny electric globes for insertion into the mouth or nose, which impress the imaginative reporter as "fairy-like;" also a room for the electro-gynecologists, into which we hope the reporter was not admitted. But the most wondrous is a closet just large enough to contain a cot-bed, and with two big arc-lights in the ceiling. These are turned on, and the patient "absorbs light into every pore of his body for hours at a time."

At one side is another room, "where the thunderbolts are stored." Finally, the reporter tells us that in the midst of this scene the doctor "handles the enormous amounts of electricity which is (*sic*) chained in the dispensary with the most fascinating ease, touching buttons, starting belts and bands on great machines, which fill a room with fireworks with as much complacency as a typewriter would touch the keys of her machine." This, we submit, is rather hard on the typewriter. She is so monopolized nowadays by the humorous journals that it does not seem fair to drag her in to decorate the authentic descriptions of newspaper-reporters. To fill a room with fireworks from a machine which also displays complacency was enough of a task, one would think, to have kept the reporter's mind off the typewriter for a few moments at least; the fact that it did not shows plainly that the poor scribe had had a shock or a glass too many, and was already seeing stars. Else why does he tell us that the way to chain electricity is with fascinating ease?

Sincerely, we esteem it a great privilege to live in the age of lightning-dispensaries and newspaper-reporters. These latter are a versatile fraternity of whom it may be said, as Dr. Johnson said of Goldsmith, that they leave scarcely any style of writing untouched; but of whom it cannot be said with equal justice, that they touch nothing that they do not adorn. When they touch a medical or scientific subject we are reminded that we live in an age, not of culture, but of popular literature; and that the newspaper-reporter who, when he wants to advertise an electro-therapeutist, announces that "lightning is her remedy," is, after all, not writing to adorn

[1] E. g., *æ* and *œ* to *e*; dropping the *al* from a few adjectives: in chemic nomenclature, etc.

literature and to tell the truth, but rather to catch the eye of the populace and to sell an edition.

As for the enterprising electro-therapeutist, if it be true that she is a member of numerous learned and highly honorable scientific bodies, we adjure her not to make her presence in them uncomfortable to her fellow-members by creating the suspicion that like some cloud-compelling and bolt-hurling Jove—disguised as a woman-doctor—she is ready on the slightest provocation, as in the heat of debate, to shoot forth lightning. If she does this, especially by advertising, they might take a notion to put her out.

EDITORIAL COMMENTS.

Infectious Diseases in Poultry.—*Bulletin* No. 8 of the United States Department of Agriculture contains an account of some interesting investigations concerning infectious diseases among poultry. The Bureau of Animal Industry has been doing some excellent work, Theobald Smith and Veranus A. Moore being conscientious workers, and their contributions to animal pathology have been many and valuable.

In the present *Bulletin* Dr. Smith describes an infectious disease among turkeys caused by protozoa and producing an enterohepatitis in the fowls affected. Turkeys normally have two ceca, two blind tubes opening into the intestine about 6 in. from the cloaca. These tubes are nearly a foot in length, and in the disease under consideration they were found invaded by the parasite, the mucous and submucous coats being thickened and inflamed, and a coagulable exudate poured out into the cecum. The parasites occupy the tissue in groups or nests. Other regions of the intestine were not affected, but the liver was extensively diseased in the greater number of animals examined. The organ is enlarged to almost twice its normal size, and round, discolored spots, varying in number and size, are distributed over the surface; these spots are made up of dead liver-cells, and in the reticulum lie large numbers of protozoa.

The organism is a form of ameba, and its effect on the body of the turkey resembles somewhat that of the ameba of dysentery in the human being. Dr. Smith points out the differences between the two amebæ, but does not answer the question whether any causal relation exists between them. The fact that an ameba is found causing similar disturbances in fowls to those produced by the amœba coli in man is of sufficient importance to bear further investigation.

A second paper in the same *Bulletin*, entitled "A Preliminary Investigation of Diphtheria in Fowls," by Dr. Veranus A. Moore, has a close connection with the foregoing question, inasmuch as some observers consider the diphtheria of fowls identical with that found in man, at least so far as clinical symptoms go, and several cases have been reported in which children became infected through the handling of diseased fowls. Dr. Moore found the lesions present in the poultry examined by him similar to those described by European observers; the bacillus detected, however, could not be identified with the one usually described as the cause of fowl-diphtheria.

While the microorganisms found associated with diphtheria in swine, fowl-cholera, and diphtheria in birds and poultry differ considerably from the Klebs-Lœffler bacillus of human diphtheria, still the latter presents such a varying morphology, under different conditions of growth, that it is not out of the question to attribute the differences between the bacillus of human diphtheria and the bacillus of fowl-diphtheria to a difference in habitat, and consider all the membrane-producing bacteria as belonging to one family or species. It is hoped that further studies along this line will be made by the Bureau of Animal Industry, as the economic importance of the subject is very considerable.[1]

Evidence is accumulating day by day showing how great a part the lower animals play in the causation of disease in man, and the time is not far off when zoology and comparative medicine will receive as much attention in our medical schools as materia medica and pharmacy.

Scientific Cooking.—The question of food has received much light from recent practical investigations in laboratories designed especially for studying the needs of the poorer classes. Such laboratories have been established in the cities of Boston, Chicago, New York, and now in Philadelphia, in the shape of scientific kitchens, where the effort is made to furnish food of sufficient nutritive value for the lowest possible price. Here the wants of the people are carefully studied, and as far as possible supplied. It has been found that much food is wasted because it is improperly prepared; the method of cooking does not bring out the quality of nourishment contained in the food or destroys it altogether.

It has likewise been shown that a great saving can be made in fuel by using ovens fashioned somewhat after the manner of incubators, the cooking being done slowly, the oven covered with felt retaining an even heat for a long period of time. By this slow process of cooking much greater nutritive value is obtained out of the food, and an oil-lamp can serve as a means of fuel. According to this new method a broth is made by placing meat and bone in an *Aladdin* oven (the name given to a simple incubator invented by Edward Atkinson), covering the meat with water and allowing it to stand over night at a temperature of 190° F. This continuation of the cooking at a temperature below the point of coagulation secures from the material the greatest amount of gelatin, retains the flavor, and makes a product richer in albumins and extractives. The long cooking of the vegetables at the temperature named likewise improves their flavor and increases their nutritive value.

In Philadelphia a scientific kitchen has lately been started under the auspices of the College-settlement Association in a section of the city once designated as the "slums," and here under a competent "chef," trained in scientific cooking in the Technical Institute of Boston and in the Drexel Institute of this city, the latest knowledge on the subject is being put to practical test. The kitchens in other cities have hardly proved a success in

[1] The eleventh census shows that in 1890 there were in the United States 258,472,155 barnyard-fowls (exclusive of ducks, turkeys, and geese), and that the egg-product for 1889 was 817,211,146 dozens, with a money-value of $98,000,000.

the financial sense of the term, but they have served as experiments and have made the work easier for others.

Many valuable dietaries have already been constructed combining proper food-value with cheapness and palatableness, and much is yet to be done in educating the public—both rich and poor—to make use of them. Lunches for school-children to take the place of indigestible sweetmeats and pastry form one of the successful ventures these kitchens have been engaged in. A luncheon in the college-settlement kitchen consists of a bowl of soup, home-made bread (baked on the premises), a cup of cocoa or coffee, and a plate of prunes or baked apples. This can be had for fifteen cents. Frying in the ordinary way is not made use of, but fish-cakes and meat-croquets are prepared by being cooked in boiling fat, this process rendering them quite digestible. A "portion" consisting of baked beans, brown bread and butter contains proteids 35 gm., fats 25 gm., carbohydrates 108 gm., calories 824 gm., costs five cents, and has in it almost one-third of the food-value required by an ordinary workingman in twenty-four hours.

While we think there is not much room for waste in the average day-laborer's kitchen, no doubt he could live much better for the same money if his wife knew something about the chemistry of foods; and it seems to us these kitchen-laboratories can be made to serve a great purpose by conducting classes in them, say for servant-girls, and inviting the co-operation of their employers. The whole subject is of vital interest to the physician, as it is related so intimately to disease-processes and to therapeusis, and it is worth his while to to give it serious consideration.

Microbes on Money.—We have all heard much of the drawbacks of riches. They take unto themselves wings, they entail anxious days and sleepless nights, they breed discord, and strangle family-affection. Yet most of us in viewing these terrors have usually felt "our courage rise with danger," as the good old hymn says, and inclined to the opinion that we would personally be willing to take the risk of them, if the condition they accompany happened to fall within our reach. The dangers are so incidental and remote that we feel sure *our* skill and judgment would enable us to avoid them. Within the last few years, however, the microscope has demonstrated another danger of more serious nature, in that it is not merely a consequence or incident of the possession of riches, but actually attaches and belongs bodily to the material wealth itself. The bacteriologist has declared that, although we may acquire riches and escape unhappiness, we must accept the risk of serious contagion every time we realize any of them in the form of money; that the surfaces of coins of all metals and denominations and bank-notes of every description are simply swarming with germs of various degrees of virulence. Cultures have shown the presence of from 450 to 3500 germs upon a single coin, ranging from the *streptococcus* and *staphylococcus pyogenes* to tubercle-bacilli and typhoid-bacilli. These have been deposited of course from contact with saliva, pus, discharges, soiled fingers, and dirty pockets. The list is an appalling one, and literally supports the Apostle's statement that "money is the root of all kinds of evil." That these germs are virulent has recently been shown by inoculating rabbits with their cultures and obtaining characteristic reactions. So far everything is discouraging, and the bacteriologist simply emphasizes the maledictions of the preacher upon literally "filthy lucre." But it was soon noticed that the proportion of fatal results from these inoculations was extremely small considering the nature of the germs present, and a series of recent experiments at an Algerian military hospital has developed the surprising fact that coins possess actual bactericidal properties and rapidly destroy or weaken any germs lodged upon their surfaces. In a cold chamber the germs of typhoid and the Friedlander bacillus were destroyed upon sterilized silver or copper coins in eighteen hours; at a temperature of 37° C., about that of the pocket, the bacilli of typhoid, of diphtheria, of blue pus, and the streptococcus are destroyed in 6 hours. The Lœffler bacillus is the most resistant and upon cold silver or copper coins will live for from 3 to 6 days. Moisture and warmth greatly hasten the process, which is probably due to the formation of poisonous oxids and other salts of the metals. A similar action upon the germs of dental caries has been noted by Willoughby as due to the copper amalgam used in filling teeth. Nature's protective mechanisms are even more wonderful than her destructive ones. We have been loudly assured by the socialist and labor-sympathizer that "capital can always be relied upon to protect itself," but we little thought to see the statement verified in this wise. Gold coins are much less actively bactericidal than either silver or copper, and germs may survive upon them for 5 or 6 days, which may partially console us for their infrequency in our professional pockets. Some kindly disposed individual should certainly bring this latter fact to the knowledge of our bimetallist friends, as it would furnish them with a strong argument against "the yellow metal."

CORRESPONDENCE.

THE RELATION OF PELVIC DISEASES TO MENTAL DISORDERS.

A Correction.

To the Editor of THE MEDICAL NEWS,

SIR: The proof of my article which was published in the MEDICAL NEWS of October 5, 1895, came to me while watching at the bedside of a near relative who was seriously ill, and this probably accounts for the fact that I did not notice the omission of cases from Dr. Rohé's report, which should have been as follows:

Puerperal mania 6 cases, with recovery in 3; melancholia 6 cases—recovery in 1, improvement in 4; simple mania 1 case, with slight mental improvement; hystero-epilepsy with mania 2 cases—recovery in 1, operation too recent in 1 to give the result. Epileptic insanity 3 cases, with 2 deaths and slight improvement in 1; periodic mania 3 cases, with decided progressive mental improvement in all; paranoia 1 case, with slight but not permanent improvement—making 22 cases, with recovery in 5 cases and decided improvement in 7.

Very respectfully,

ISABEL M. DAVENPORT.

ILLINOIS EASTERN HOSPITAL FOR THE INSANE
KANKAKEE, November 5, 1895.